

**FIRST REPORT OF THE
EVALUATION OF THE DISADVANTAGED STUDENT
SUPPLEMENT FUND (DSSF)**

APRIL 2007

**GARY T. HENRY
UNIVERSITY OF NORTH
CAROLINA AT CHAPEL HILL**

**DANA K. RICKMAN
GEORGIA STATE UNIVERSITY**

**CHARLES L. THOMPSON
EAST CAROLINA UNIVERSITY**

**C. KEVIN FORTNER
GEORGIA STATE UNIVERSITY**

**KELLEY M. DEAN
GEORGIA STATE UNIVERSITY**

Financial support for the Disadvantaged Student Supplement Fund Evaluation was provided by the North Carolina Department of Public Instruction. The authors assume all responsibility for interpretations and any errors. Additional copies of the report can be requested by contacting Dr. Gary T. Henry, University of North Carolina – Chapel Hill.

Table of Contents

Executive Summary	iii
Chapter 1 -- Introduction	1
Chapter 2 – Patterns in Student Achievement	12
Chapter 3 – The Distribution of Quality Teachers and Principals in North Carolina	30
Chapter 4 - Implementation of DSSF	61
References	91

We would like to acknowledge the hard work and dedication of all the graduate research assistants, staff and consultants in North Carolina and Georgia who have worked on this project. In particular, we would like to thank Kirsten Kainz at UNC- Chapel Hill, Wanda Weaver at the Frank Porter Graham Child Development Institute, Bev Faircloth, Elizabeth Kolb Cunningham, Nancy Davis, Barry Aycock, and from Georgia State University – Stacie Kershner and Angye Rincon. We owe a special thanks to Karen DeVivo at Georgia State University, who spent many hours working with both North Carolina and Georgia evaluation team members and consultants to provide a detailed analysis of the DSSF district’s implementation policy and plans. Finally, we’d like to acknowledge Ignacio Navarro at Georgia State University and Ross Rubenstein at Syracuse University for their extensive work with the North Carolina education expenditure data.

Executive Summary

The DSSF Pilot Evaluation: Report 1

In 2004, Governor Mike Easley and the North Carolina State Board of Education established the Disadvantaged Student Supplemental Fund (DSSF) as a pilot program in 16 of the state's most educationally disadvantaged districts. The overarching goal of the program, which is the focus of this report, was to increase the learning and academic performance of students, especially disadvantaged students. During the 2004-2005 school year, the program provided \$22.4 million to the pilot districts. The program allowed districts flexibility in using the funds to attract and retain qualified, competent teachers and to provide enhanced instructional opportunities to students at risk of school failure. The NC Department of Public Instruction (DPI) was required to provide assistance and monitor the program through the Local Education Agency Assistance Program (LEAAP).

The pilot program continued with slightly increased funding for the 2005-2006 school year. In 2006-2007, the Governor recommended expanding the program statewide, and the North Carolina General Assembly appropriated \$49.5 million for DSSF along with significant increases in other state education programs.

In 2005, the General Assembly mandated an evaluation of the effectiveness of the strategies funded by the DSSF program, as well as the effectiveness and efficiency of DPI's LEAAP teams. This is the first of several reports from the evaluation team organized through the University of North Carolina at Chapel Hill. The evaluation team assembled and analyzed data on expenditures, teachers, and students from a number of sources within the NC Department of Public Instruction. The team also collected implementation data from each of the districts through interviews with district administrators and principals, as well as focus groups with teachers.

Findings from the DSSF Evaluation: Report 1

A main purpose of this report is to describe in detail student performance and educational resource allocation – including both human and financial resources -- in the 16 pilot districts during the first year of DSSF funding, before that funding could be expected to improve conditions or outcomes. In one sense, the report will provide a baseline against which we will assess progress in DSSF districts over time. In another sense, however, the detailed descriptive information presented in this report is more than simply a baseline. This report documents disparities in access to high quality teachers between the DSSF districts and the rest of the state and within the DSSF districts, the flow of students into and out of academic proficiency, and the implementation of the pilot program, including how funds were expended by the districts.

Here are some of the main findings presented in this report:

1. Academically disadvantaged students in the DSSF districts were substantially less likely to be taught by high quality teachers than were the proficient students in those districts. Moreover, the disadvantages of these students were compounded by the fact that the students

in the DSSF districts were substantially less likely to be taught by high quality teachers than were the students in the rest of the state. This was true across all eleven indicators of teacher quality we measured and across elementary, middle and high schools. For example, only 53% of the educationally disadvantaged high school students enrolled in classes with End of Course (EOC) exams in the pilot districts had access to a teacher who was licensed to teach their courses. In the rest of the state, previously proficient students had access to teachers licensed to teach EOC courses approximately 70% of the time.

For an additional example, 2% of the time academically disadvantaged elementary students in the DSSF districts were taught by a Nationally Board Certified Teacher whereas over 8% of the time proficient elementary students in non-DSSF districts had access to these highly skilled teachers.

As a result of the inequities in teacher quality, academically disadvantaged students were less likely rather than more likely to be taught by strong teachers who could help them make up the deficit.

2. With remarkably few exceptions, students living in poverty and minority students were substantially less likely to be taught by higher quality teachers than were their more economically advantaged and White peers. For example, 43% of the middle school students who were living in poverty in the DSSF districts were taught by teachers with above average scores on their PRAXIS exams, while 56% of their more affluent peers in these districts and 61% of their more affluent peers in the rest of the state were taught by such teachers.

3. The pilot districts were among the most academically disadvantaged in North Carolina. At the end of 2005, in DSSF districts the percentage of third through fifth grade students who tested proficient was approximately eight percentage points below the percentage who demonstrated proficiency in reading in other NC districts and more than five points below the rest of the state in math. For sixth through eighth graders, the difference between the performance of students in DSSF districts and non-DSSF districts was almost eight percentage points in reading and over seven percentage points in mathematics.

4. From one grade to the next, more students in the pilot districts drop below proficiency in math, but in reading there is a precipitous drop in proficiency during the first year of middle school – a drop from which students spend the next two years recovering.

As they moved from one grade to the next in elementary school, nearly 2% of the students in DSSF districts fell below the proficiency level in mathematics each year. This drop in proficiency exceeded the rate at which students gained proficiency by nearly four percentage points during middle school. While more students gained proficiency than fell below in reading each year in elementary school, a net drop of 9% in the proficiency rates of students occurred during their first year in middle schools in the DSSF districts.

5. High school students in the DSSF districts who were not proficient in either math or reading in the 8th grade were unlikely to pass their End of Course (EOC) tests in Algebra I, English I or Biology. Only 15% of the high school students in the DSSF districts who were not-

proficient in either reading or math at the end of eighth grade passed their Biology EOC test. In the DSSF districts, the passing rate in English I and Algebra I was approximately 39% and 49%, respectively, for high school students who were not proficient in either reading or math or both in the eighth grade. Furthermore, in the DSSF districts, 66% of the high school students who as eighth graders were proficient in math and reading went on to pass the Biology I test by 2005.

6. Teachers and administrators in the DSSF districts identified turnover of teachers and district leaders as the main problems that contribute to the low student performance and high drop-out rates in their districts. District personnel, principals, and teachers in these districts identified several causes for high turnover rates, including:

- competition among districts in the state and with neighboring states for a limited number of highly qualified teachers
- lack of discipline in the schools
- poor leadership
- poor student performance
- lack of adequate materials and supplies
- large numbers of Lateral Entry Teachers (teachers who enter teaching from another field) who fail the PRAXIS tests and are thus ineligible to continue;
- inadequate support and mentoring for new teachers
- the promotion of teachers to administrative positions
- large numbers of Teach for America teachers and Visiting International Faculty, programs that place teachers for two or three year commitments

6. The pilot districts spent most of their DSSF funds in the first two years on salaries for classroom teachers. However, districts encountered several issues in implementing the DSSF program during the two years of the pilot program and were not able to match the levels of salary supplements that other districts offered. Fifteen of the 16 pilot districts opted to implement various forms of salary incentives such as retention bonuses, salary supplements, or performance-based bonuses. On average, districts spent 65% of their total DSSF expenditures in the first year on recruiting and retaining teachers. In the first year of the DSSF pilot, as a set the 16 districts raised their average supplements from \$1,365 the previous year to \$1,559. In 2005-2006, across the 16 districts the average supplement was raised again to \$1,628. This represented a 16.15% increase from two years earlier, yet it continued to lag behind the state average of \$2,967 average.

7. The technical assistance provided by the Department of Public Instruction through its LEAAP teams was valuable to many districts, but at times the guidance was inconsistent. The LEAAP teams were assigned to provide support in the development of each district's plan, review the plans for compliance with the DSSF funding requirements, and monitor the activities in each district. Teachers, principals, and district officials indicated that the two most common roles were helping to write and edit the DSSF plans and acting as an advisor/mentor for district office personnel. Due to the variety of roles taken on by the LEAAP teams and the limited amount of guidance and up-front training they received, some issues arose during the teams' interactions with the individual districts. The issue that most affected implementation of DSSF was the conflicting information provided to the districts. Currently, the LEAAP teams are no

longer serving the DSSF districts. Instead, three individuals have been assigned to monitor and aid all districts with their plans.

Summary and Next Steps

The Governor and General Assembly increased the state's commitment to disadvantaged students by more than doubling the funding for the Disadvantaged Student Supplemental Fund for 2006-2007 and increasing other funds targeted to confront economic disadvantages, as well. However, the evidence in this report identifies serious issues that may present obstacles for moving greater numbers of North Carolina students into academic proficiency, even with the substantial funding increases.

Clearly, access to higher quality teaching is an issue that must be confronted before significant progress can be made in reducing academic disadvantages. Disadvantaged districts have more students who are below proficiency than other districts and more students dropping below proficiency every year than the rest of the state. Disadvantaged students in disadvantaged districts suffer great disparities in terms of access to the kinds of teachers that research shows can produce higher levels of student performance in tested grades and courses. These disparities occur in a state where about 80% of the teachers in grades three through five were fully certified to teach in those grades and fewer than 65% of the middle and high school teachers who taught tested subjects were fully certified to teach those classes.

State education officials as well as the teachers and district leaders throughout North Carolina recognize that high teacher turnover and turnover in leadership are major obstacles to achieving higher levels of student performance. However, current efforts at ameliorating these problems are being undermined by intra-state competition for effective teachers and able school leaders who can improve student learning in schools and districts with high levels of disadvantages. Currently, the state lacks the capacity and resources to guide the improvements in these districts. These educational disparities cannot be solved by taking action only at the school level because school efforts are affected by state and districts policies as well as their own actions.

In this report, we present strong evidence that creates a basis for initial actions. At the same time, we commit to redoubling our efforts to carefully study the effects of additional funding from DSSF and pinpoint issues that stand between the funding and achieving higher and higher levels of student success. In the next year, we will add to our accumulating information about the changes that have occurred as a result of the Disadvantaged Student Supplemental Fund and the effects of those changes. This summer, we will report on the changes in access to higher quality teachers and patterns of student performance in the 16 pilot districts that occurred between the first and the second year of the program. Soon after, we will provide an analysis of the effects of DSSF and higher quality teachers in high schools. Reports on the other levels of schooling and the first year of statewide funding will follow during the 2007-2008 fiscal year.

Chapter 1: Introduction

In 2004, Governor Mike Easley and the North Carolina Board of Education, working in concert, initiated a pilot program known as the Disadvantaged Student Supplement Fund (DSSF) to improve the education of academically at-risk students. The pilot program provided \$22.4 million to fund school improvements in 16 school districts in North Carolina during the 2004-2005 school year. The 16 districts were selected on the basis of four factors that indicated that their students were at significant risk academically. These factors included having 25% or more of their students failing to achieve proficiency on the ABC assessments, high teacher turnover, approximately a third of their teachers having less than five years of experience, and large percentages of students living in poverty. The pilot districts were and continue to be 16 of the most educationally disadvantaged in the state.

The pilot program continued in these 16 educationally disadvantaged districts in 2005-2006 with a slight funding increase. In 2006-2007, the Governor recommended expanding the program statewide, and the North Carolina General Assembly appropriated \$49.5 million for DSSF as well as significant increases in other state education programs. One of the original districts, Robeson County, continues to receive the largest amount of funding from the program (\$6.1 million), and all of the 16 educationally disadvantaged pilot districts continue to receive the DSSF monetary supplement based on the same funding formula as was used in 2005-2006 (ranging from \$2 million to \$264,500 in the 15 other pilot districts). The state's other 99 districts received a total of \$27 million from the DSSF, including Wake and Charlotte-Mecklenburg, which received more than \$1 million each.

The overarching goal of the DSSF pilot program, which is the focus of this report, was to increase the learning and performance of students, especially disadvantaged students. For the purpose of this program, "disadvantaged" has been defined academically, so that "disadvantaged students" are those who have not achieved proficiency on the ABC assessments. The DSSF pilot program allowed school districts flexibility in spending the funds to enable them to attract and retain qualified, competent teachers and to provide enhanced instructional opportunities for students at risk of school failure. Districts were provided with a menu of strategies that they could use to address educational issues within the district. The Department of Public Instruction (DPI) was required to provide assistance and to monitor the program through the Local Education Agency Assistance Programs (LEAAPs).

In 2005, the General Assembly mandated an evaluation of the effectiveness of the strategies funded by the DSSF program, as well as the effectiveness and efficiency of DPI's LEAAP teams. This is the first of several reports from the evaluation team organized through the University of North Carolina at Chapel Hill. In this report, we first provide data on student performance and teacher quality in the original 16 DSSF districts before the pilot program began to affect the nature and quality of the educational services provided to students in these districts. We then go on to describe the initial implementation of the DSSF program. Because the districts' plans for expending DSSF funds were approved in the middle of the 2004-2005 school year, it would not be reasonable to expect significant improvements in the districts during the first year of the program. In this sense, this report presents baseline information on student achievement and teacher quality prior to implementation of the program.

In the follow-up report scheduled to be released in later 2007, the extent to which the program has improved the educational experiences of academically disadvantaged students in these districts will be examined. Future reports, the first of which is scheduled for the summer of 2007, will analyze the effects of the educational experiences and school quality on students' performance and the extent to which DSSF funds have affected student performance in the 16 pilot districts.

The remainder of this introduction will establish the context for the initiation of the Disadvantaged Student Supplemental Fund, describe the DSSF program and the pilot districts, and summarize how the funds were expended.

The Context in which DSSF was Established: the Leandro Lawsuit

In May 1994, five low-wealth counties filed a lawsuit against the State Board of Education and the State of North Carolina. The lawsuit is commonly known as *Leandro*, after a named plaintiff in the case. The five counties in North Carolina represented in the lawsuit claimed that despite their high tax rates, their low wealth produced too little funding to adequately provide for their students' education. Moreover, the State did not provide enough supplemental financing to allow the districts to correct this deficiency. Subsequently, six urban school districts also asked to be parties to the Leandro lawsuit, stating that the state funding formula did not provide them with sufficient funds to educate their at-risk students and students for whom English is a second language (NC Justice Center, 2005).

From 1999 to 2003, Judge Howard Manning, Jr. ruled on *Leandro* by issuing a series of opinions in which he concluded that:

- Every student must be taught by a highly qualified teacher.
- Every school must be led by a highly competent administrator.
- Every school must have the resources necessary to provide each student with an equal opportunity to receive a sound, basic education.

On July 30, 2004, in response to an appeal of Judge Manning's rulings by the State, the NC Supreme Court ruled that every child in North Carolina has a constitutional right to have an equal opportunity to receive a sound, basic education. The Supreme Court also upheld the majority of Judge Manning's orders requiring the State to take steps to provide all students with that equal opportunity (NC Justice Center, 2005).

Creation of DSSF

As an initial, good faith response to meeting the State's obligation to provide all students with a "sound, basic education", the Governor and the North Carolina Board of Education launched the Disadvantaged Student Supplemental Fund pilot program in 2004. During the 2004-2005 school year, they provided \$22.4 million in additional funding to 16 pilot school districts to improve opportunities and outcomes for students who were at risk of not receiving a sound, basic education. The 16 districts selected for the pilot were the state's most disadvantaged as

measured by four indicators of educational disadvantage: teacher turnover, inexperienced teachers, children living in poverty, and students not meeting state proficiency standards.

In November 2004, each of the 16 DSSF districts submitted an action plan and budget to the State Board of Education, based on the funding allocated to them. These documents were to reflect the strategies that the districts would use to aid low-achieving students and to indicate how the additional funds would support these strategies. Plans were reviewed by the local school board prior to submission. The districts were required to allocate money using the “Menu of Proven Strategies” (also referred to in program documents as the “Menu of Options”) established by the State Board of Education. The Menu of Options allowed districts to allocate money to five categories defined by the Board:

- Recruiting and retaining teachers – including signing bonuses, performance-based bonuses, and targeted salary supplements and retention bonuses (for example: additional pay to teachers with National Board Certification).
- Personnel – including class size reduction, support for lateral entry teachers, support for special instruction programs (i.e., Project Achieve, EVAAS, Learning Bridges, Positive Behavior Support, Schools Attuned, etc.) and classroom support for Limited English Proficiency (LEP) students.
- Professional development activities – including best practices training and refining personalized education plans (PEPs).
- Extending instructional time – including tutorial services and transportation and other related costs for after-school programs and/ or Saturday academies.
- Instructional materials, supplies, and equipment, including technology, books, etc.

For the 2005-2006 year, there were some revisions to the Menu of Options that potentially could have exerted a significant influence on the ways that districts allocated funds. First, the Menu included the new opening statement, "All selected strategies should focus on improving the performance of students scoring at Levels I and/or II in the schools that need extra support because of high teacher turnover, large numbers of students who haven't reached proficiency, a record of less than adequate performance, rapid turnover in principals, etc." Second, expenditures for certain strategies, including teacher salary supplement increases, were capped. Third, the Menu of Options offered the additional categories of “Data Driven Decision Making” and “Implementing Personal Education Plans (PEPs).” Finally, the Menu placed greater focus on:

- Recruiting and retaining teachers (using the Teacher Working Conditions Survey as a tool);
- Class size reductions made to help particular groups of students rather than across the board;
- Developing, refining, and implementing plans specifically designed to address the carefully diagnosed problems of individual disadvantaged students (Personalized Education Plans).

In addition to reviewing the plans from the 16 districts, the NC Department of Public Instruction was charged with providing assistance to the districts through the LEAAP teams and overseeing the DSSF expenditures.

The Department of Public Instruction's Assistance to DSSF Districts

The Local Education Agency Assistance Program (LEAAP) was initiated in 2001 to work with districts designated as the lowest performing in the state as measured by their ABC composite scores. The LEAAP teams began to work with these districts to improve student achievement and to build the capacity of the districts' staffs for planning and implementing improvements designed to boost student performance.

When the DSSF program began, the State Board of Education added a new role for the LEAAP teams in the 16 pilot districts. The teams were assigned to provide support in the development of each district's plan, review the plan for compliance with the DSSF funding requirements, and monitor the activities in each district. The LEAAP teams assigned to DSSF districts were staffed primarily by independent contractors who worked with the districts and were supervised by the Office of the Associate Superintendent for Curriculum and School Reform Services within the NC Department of Public Instruction.

When the DSSF program was extended statewide in 2006-2007, the mission of the LEAAP teams was modified yet again. LEAAP teams were reassigned from the task of supporting the DSSF pilot districts to the task of assisting selected districts that had the largest percentages of schools requiring corrective action as required under No Child Left Behind (NCLB). Thus, the LEAAP program has been assigned three distinct missions over its relatively brief history. The missions are related but significantly different from each other. As we shall discuss at greater length later in this report, the successive changes in mission have presented challenges to the development and implementation of a coherent, consistent district assistance model for the Department of Public Instruction. Even with consistent efforts on the part of the DPI leadership, it has proven difficult to overcome the constraints on the department's resources and capacity.

District Comparisons

As noted above, the 16 pilot districts were selected on the basis of their level of educational disadvantage based on four factors: high teacher turnover, a high percentage of inexperienced teachers, a high percentage of poor children, and low levels of academic proficiency. However, this does not paint a complete picture of the pilot districts. Most of these 16 districts are small, rural districts. Even with the high population of Robeson County factored in, on average, the 16 districts have 5,599 students, about half the size of the average for most NC districts. Moreover, the collective population growth rate for these districts is less than one percent, which is less than half the growth rate in the rest of the state. The districts are dispersed around the northeastern and east-central sections of the state. None were in the western or southeastern regions of the state.

District Characteristics

African-American students are in the majority in these districts (59.53%). A little over one-quarter of the students are White (28.30%). Statewide, the reverse is true – North Carolina's student population is predominantly White (57.56%), and about one-third of the student population is African American (31.40%). Further, five of these 16 districts have still higher concentrations of African-American students (over 75%). The 16 districts have a noticeably higher population of Native American students (4.39%) than the statewide average (1.47%) as well, with one of the 16 districts having over 40% Native American students.

The average percentage of Hispanic students across all 16 districts (7.00%) is virtually the same as the state average (7.52%); however, in three of the 16 districts nearly a fifth of the students are Hispanic.

According to the 2000 Census, 11 of the 16 districts had a higher percentage of children living in single family homes than the statewide average of 24.3%. In addition, over 25% of the children in these 16 districts were living in poverty, compared to the statewide average of just over 16%. The North Carolina School Report Cards for school year 2004-2005 indicate that almost half (49.7%) of the schools in these 16 districts had 80-100% of their students qualifying for free or reduced lunches. Statewide, only 16.9% of schools had 80-100% of their students qualifying for free or reduced price lunches.

The high poverty in these districts, compared to North Carolina as a whole, is also evident in other ways. The per capita income for these counties in 2004 was \$22,146, approximately 75% of the per capita income in the state as a whole, \$29,322. In 2005, the average unemployment rate for the counties where these 16 districts are located was 6.7%, while the state unemployment rate was 5.2%. For these districts, an average of 68.0% of adults over 25 reported holding at least a high school degree in 2000, while 78.1% of all North Carolinians over 25 reported holding a high school degree or more. In these districts, about half the percentage of adults had a college degree (11.9%) when compared with North Carolina as a whole (22.5%).

Disparities between educational resources in the pilot districts and the state as a whole, including both human and financial resources, are readily apparent, as well. The average salary supplement for these districts in 2004-2005 was \$1,559. For all other North Carolina districts offering salary supplements, the average supplement was \$2,865. While 30.4% of teachers in other districts across North Carolina had graduate degrees in 2004-2005, only 24.6% of the teachers in these 16 districts did. In contrast, 7.4% of all teachers in the 16 districts were in their first year of teaching in 2004-2005, whereas only 4.3% of all teachers in the rest of the state were new that year. The teacher turnover rate in the other districts in North Carolina for 2003-2004 was 15.4% compared to average turnover for the 16 districts of 19.6%. The turnover rate reveals the percentage of teachers that were paid by DPI during the 2003 school year, but then not on the payroll during the 2004 school year. Twelve of the 16 districts had turnover rates greater than 20%, indicating that one out of every five teachers had left the district in a single year.

In these 16 districts, 57.95% of the eligible schools did not demonstrate Adequate Yearly Progress (AYP) in 2004-2005 compared to 42.27% failing to make AYP statewide. None of the 16 districts made AYP. For 2004-2005, the districts reported a cohort graduation rate (the ratio of graduates to the number of ninth graders four years earlier) of only 56.14% compared to the statewide average of 64.70%.

In Table 1.1, the passing rates for the state's ABC End of Grade (EOG) and End of Course (EOC) tests are presented for the 16 pilot districts and for the state as a whole. The passing rates for the ABC tests in these districts lagged behind the state average by 10 to 20 percentage points in 2004-2005. For the EOG math tests in grades 3-8, the passing rate was 8.1 percentage points less in the pilot districts, and on the EOC test in Geometry the differences increased to 23 percentage points. About half the students in the 16 districts passed the high school tests in geometry, physical science, or biology.

Table 1.1: 2004-2005 End of Grade and End of Course Averages for 2004-2005

District	EOG Grades 3-8 Reading	EOG Grades 3-8 Math	EOC Scores English I	EOC Scores Algebra I	EOC Scores Algebra II	EOC Scores Geometry	EOC Scores Biology	EOC Scores Chemistry	EOC Scores Physical Science	EOC Scores Physics
Edgecombe	75.3	82.4	79.5	76.3	78.7	68.1	61.2	75.1	*	77.1
Elizabeth City/Pasquotank	81.0	81.8	77.8	68.2	65.7	46.6	46.0	68.2	48.1	78.6
Franklin	80.7	81.7	79.0	73.0	75.3	55.0	56.4	72.6	82.1	79.2
Halifax	75.1	80.0	63.0	51.1	61.6	17.0	14.5	44.2	17.8	29.4
Hertford	71.1	77.8	60.5	47.9	64.5	31.9	33.0	62.9	46.2	*
Hoke	75.9	79.2	78.4	67.0	42.1	32.4	40.8	47.7	33.8	83.3
Hyde	78.9	85.9	82.0	90.2	92.0	84.4	51.2	95.0	76.3	*
Lexington City	80.0	85.4	66.8	52.3	47.7	34.1	45.9	81.2	75.3	*
Montgomery	76.7	80.9	75.3	68.2	67.5	52.8	47.3	70.5	66.1	82.4
Northampton	75.9	77.3	65.9	75.8	44.8	33.2	51.7	53.1	39.4	>95
Robeson	76.1	81.2	71.1	76.3	81.0	63.2	59.0	73.7	65.1	74.2
Thomasville City	73.5	73.6	82.5	76.3	83.8	48.3	63.4	64.9	82.0	95.0
Vance	75.9	81.0	61.3	69.9	64.2	44.6	44.4	83.7	54.4	95.0
Warren	75.3	79.1	63.4	56.1	78.0	39.5	41.1	61.8	39.2	68.7
Washington	66.0	71.7	63.9	69.6	47.8	34.1	39.4	54.8	47.1	80.0
Weldon City	66.0	68.7	73.3	55.2	70.1	41.7	48.4	22.2	35.7	*
16 District Average	75.2	79.2	71.5	67.1	66.6	45.4	46.5	64.5	53.9	76.6
Statewide Average	84.6	87.3	81.9	80.3	79.1	68.4	63.6	76.6	68.8	86.1

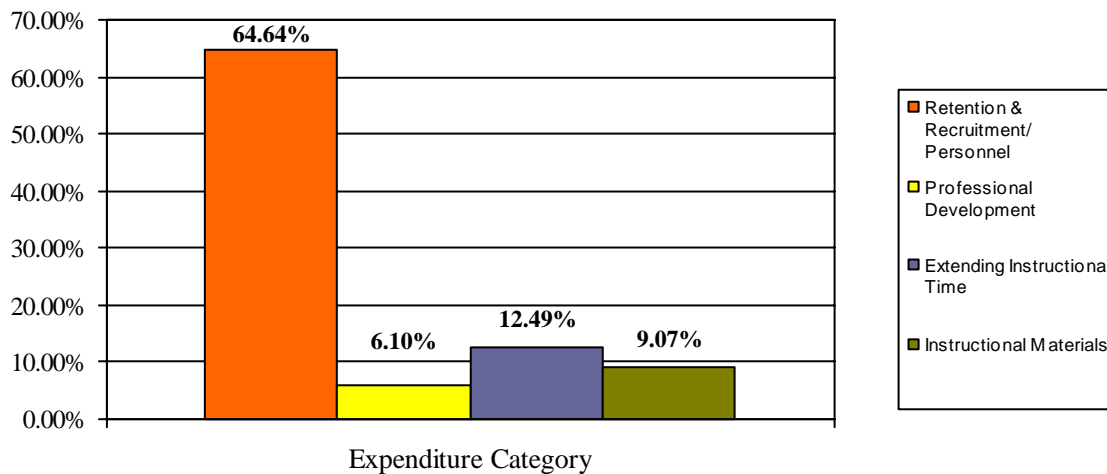
* denotes that five or fewer students took the exam

Information obtained from <http://www.ncschoolreportcard.org/src/> for year 2004-2005

District Spending of DSSF Funds

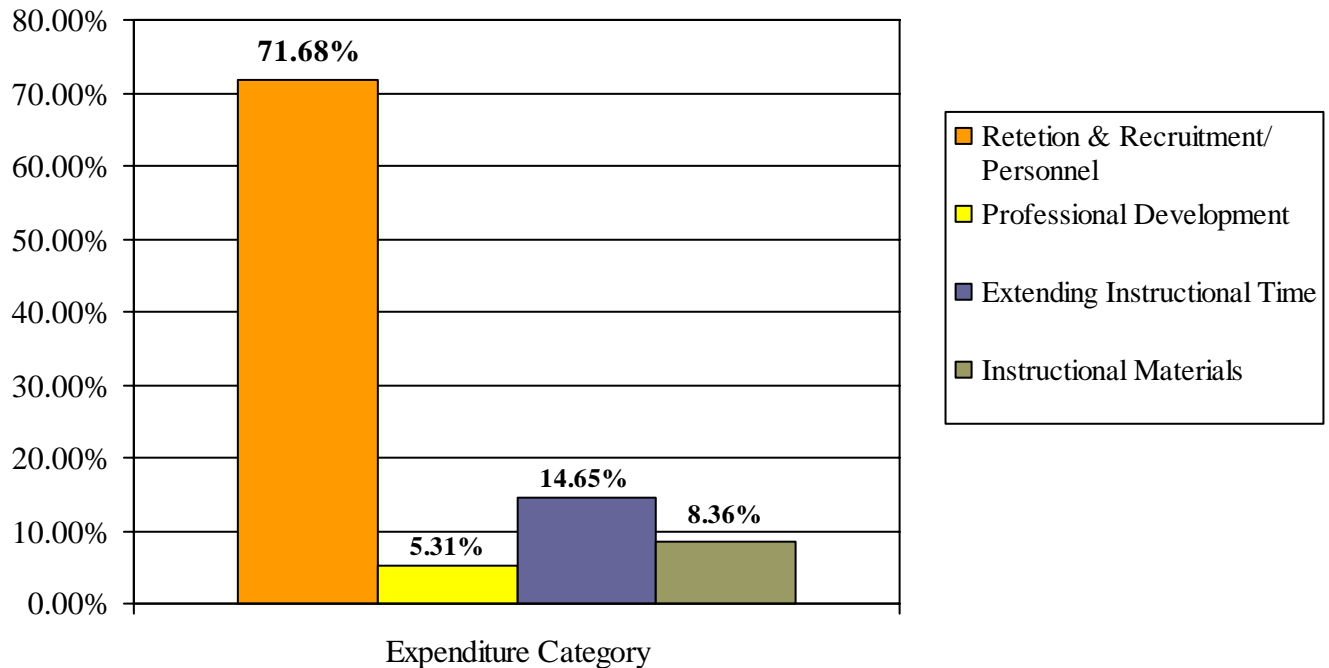
DSSF funds intended to redress some of the educational disadvantages in these districts became available to the pilot districts midway through the 2004-2005 school year. Each of the individual districts pursued a variety of avenues to improve the education offered in their schools, but collectively they spent nearly 65% of the funds on personnel. This included recruiting and retaining teachers (e.g., bonuses) or other personnel-related expenses, such as adding teachers to reduce class sizes, support for lateral entry teachers, or support for special instruction programs (Table 1.2). The remaining funds were spread across the other Menu of Options strategies of professional development (6%), extending instructional time (12%), and instructional materials, including technology (9%).

Table 1.2: DSSF 2004-2005 Expenditures: \$22,360,504



As previously stated, there were some revisions to the allocation instructions given to the districts for the 2005-2006 school year. The State Board of Education placed greater emphasis on recruiting and retaining teachers, class size reduction, and Personalized Education Plan (PEP) development and implementation than had been done in 2004-2005. The planned allocation of DSSF funds for 2005-2006 reflects the increased emphasis on personnel (Table 1.3), already the dominant spending category in 2004-2005. Spending on personnel and recruitment and retention rose to 71% of total planned expenditures for 2005-2006. Even though PEP Development and Refinement was an intended focus for 2005-2006, planned spending on professional development activities, the category where PEP-related spending would be likely, dropped nearly one percent to 5.3% of the total DSSF planned expenditures. This may be a result of the fact that by the time they were planning their second year budgets; most districts were aware of the Teachers Academy funding and therefore shifted dollars away from professional development.

Table 1.3: DSSF 2005-2006 Proposed Expenditures \$22,484,581



Clearly, these districts believed that their greatest needs were related to teachers and other personnel. As later sections of this report will describe, the districts pursued a variety of strategies to address these needs, while also devoting resources to solving other problems.

Report Organization

A main purpose of this report is to describe in detail student performance and educational resource allocation, including both human and financial resources, in the 16 DSSF districts as they began to receive DSSF funding. In one sense, this will provide a baseline against which we will assess their progress over time. In another sense, however, the detailed descriptive information presented in this report is more than just a baseline. It provides important information about the disparities in access to high quality teachers that the students in these educationally disadvantaged districts receive compared to the remainder of North Carolina. It shows the flow of students into and out of academic proficiency, which may provide a more complete picture of the performance problems that exist in these districts as well as the rest of the state. In addition, it provides a picture of the current capacity of the state to assist districts that encounter greater educational disadvantages than do the rest of the state's districts.

Performance of Disadvantaged Students

In the second chapter of the report, we will examine the 2004-2005 academic performance of the students in the 16 DSSF districts compared to the rest of the state. In 2004-2005, when DSSF was implemented, five of these districts were in "district improvement" under No Child Left Behind (NCLB). Districts are placed in this status if target goals are not met two years in row in each grade bracket (three-five, six-eight, high school) for math and reading. Once in this

improvement status, districts must take certain actions, such as the notification of parents, revision of their local school improvement plan, and/or using at least 10% of their Title I federal funds for professional development. We have already shown that the passing rates in these districts are significantly lower than the rest of the state, but in Chapter 2 we will examine student performance in depth.

In the ABCs assessment and accountability system, there are four levels of student achievement. Levels 3 and 4 indicate proficiency; and Level 1 and 2 scores indicate that student performance is less than proficient in the tested subject. Using data from the 2005 school year, we will first provide descriptive information that compares the percentage of Level 1 and Level 2 students in the 16 DSSF districts to the rest of the state. Then, we will present an analysis of the extent to which students moved into proficiency or dropped below proficiency from one year to the next (from 2004 to 2005).

Tracing the movement of students into and out of proficiency will allow schools to better target where students are falling behind for increased attention. In addition, it draws attention to the fact that more students fell out of proficiency than achieved proficiency nearly every year, suggesting that resources devoted to keeping students at-risk of dropping below the proficiency scores should be considered in improvement planning.

Teacher Quality

One conclusion reached by Judge Manning in the *Leandro* case was that “Every school must have the resources necessary to provide each student with an equal opportunity to receive a sound, basic education.” He elaborated that competent teachers were a required resource for all students. A number of studies have shown differences in the quality of teachers for economically disadvantaged students and minority students, suggesting that these students are not being taught by their fair share of higher quality teachers, as defined by teachers’ general academic ability, mastery of content, experience, and pedagogical skill (Peske and Haycock, 2006). In Chapter 3, we will compare the overall teacher quality within the 16 DSSF districts with that in the rest of the state. Included in this chapter are measures that research and prior policy have established as important in defining teacher quality, such as type of degree and competitiveness of degree institution, licensing status, National Board Certification status, years of experience, and PRAXIS scores. In addition, we will examine class size and teacher turnover rates.

Moreover, the analysis will probe the allocation of quality teachers. For what we believe to be the first time, we will determine the percentage of time academically disadvantaged students have access to teachers of high quality when compared to their proficient peers. We compare student exposure to high quality teachers within the 16 districts with student exposure in the remainder of the state. In addition, we compare the same types of access rates for students with economic disadvantages and their more advantaged peers as well as the rates for White, African-American, and Hispanic students.

Judge Manning’s focus on effective principals is predicated on his belief that principals influence student outcomes. However logical this may seem and however widely it is believed, this is an area in which there has been little research conducted. More research is needed that links the

characteristics or behavior of principals to student performance than there is evidence linking characteristics of teachers to student performance. Currently, the best research indicates that (a) the effect of principal leadership on student learning outcomes is indirect and small, but statistically significant, yet (b) critical in turning “failing” schools around. Thus, although the evidence connecting principals to student outcomes is thinner and the effects smaller than may be commonly believed, principal leadership may be very important in DSSF districts, where many schools must struggle to meet expectations.

Implementing DSSF in 2004-2005 and 2005-2006

In Chapter 4, we will provide an analysis of the implementation of DSSF in the 16 districts. This chapter will explain the planning process in the districts, including the major educational problems that the districts viewed as barriers to their success in increasing student achievement. This chapter also describes the interactions between the members of the LEAAP teams assigned to each of the 16 districts and the district administrators and teachers.

Chapter 2: Patterns in Student Achievement

In this chapter, we examine how overall student performance in the 16 DSSF pilot districts compares with student performance in the other districts across the state. We also examine how the performance of racial/ethnic and socioeconomic subgroups of students in DSSF districts compare with each other and with corresponding subgroups in other districts across the state. In addition, we compare the rates at which students gain or lose proficiency as they move from grade to grade.

In making these comparisons, we focus primarily on the percentage of students who demonstrated “proficiency” in reading and mathematics on End of Grade (EOG) and End of Course (EOC) assessments. In the ABCs assessment system, student scores on EOG and EOC tests fall into four levels of achievement. The knowledge and skills demonstrated by students scoring at Level 1 (insufficient mastery) and Level 2 (inconsistent mastery) are not adequate to enable them to succeed in the next grade in school. They have not reached grade level “proficiency.” For example, students who score at Level 1 or Level 2 on the third grade assessments have not attained sufficient mastery of third grade reading and mathematics skills to enable them to succeed in the fourth grade. By contrast, students scoring at Levels 3 (consistent mastery) and 4 (superior mastery) have developed the skills necessary to succeed in the next grade. They have reached “proficiency.”

The DSSF districts are among the districts with the fewest proficient students in the state. This has affected their ratings under No Child Left Behind (NCLB). In 2004-2005, when DSSF was implemented, five of the 16 pilot districts were in “district improvement” under NCLB. Districts are placed in this status if target goals for student proficiency are not met two years in row in each grade bracket (third-fifth, sixth-eighth, high school) for math and language arts/ English.

We use data from the 2004-2005 school year to compare the percentage of students who demonstrated proficiency on End of Grade and End of Course tests in the 16 DSSF districts with the percentage proficient in the rest of the state. We also examine the percentages of students who scored proficient in different subgroups, comparing groups within the DSSF districts with each other and comparing the subgroup percentages in the DSSF districts with the corresponding percentages for other North Carolina districts.

In addition, we show the percentage of students who gained or lost proficiency at each grade level. For example, we calculate the percentage of students who were not proficient at the end of the third grade in 2004 who reached proficiency by the end of fourth grade in 2005, as well as those who were proficient at the end of third grade that lost ground and were not proficient by the end of fourth grade. Using data from 2004 and 2005, we examine the net change in percent proficient (based on the percentage of students who gained proficiency minus the percentage of those who lost proficiency) at each grade transition (for example, from the end of third grade in 2004 to the end of fourth grade in 2005) for the DSSF districts as a set and in individual DSSF districts. Additionally, we compare these net changes in the DSSF districts as a set with the corresponding net changes in other North Carolina districts. Finally, we examine the proficiency ratings of high school students on the End Of Course exams based on whether the students were

proficient on both reading and mathematics at the end of eighth grade or they were not proficient on one or both of the eighth grade exams.

Overall K-8 Reading and Mathematics Proficiency Levels in DSSF and Non-DSSF Districts

At the end of 2005, the percentage of third through fifth grade students who tested proficient in reading in DSSF districts was approximately eight percentage points below the percentage who demonstrated proficiency in reading in other NC districts. In DSSF districts the percentage of third through fifth grade students who scored proficient in mathematics was more than five points below the percentage scoring proficient in rest of the state. For sixth through eighth graders, the difference between students in DSSF districts and non-DSSF districts was almost eight percentage points in reading and more than seven percentage points in mathematics. (See Table 2.1.)

Looking at the 16 DSSF districts individually, in third to fifth grade reading 15 of the 16 districts showed proficiency percentages lower than the rest of the state, one district by more than 20 percentage points. One DSSF district showed a third to fifth grade reading proficiency percentage slightly higher than the average third to fifth grade reading proficiency in non-DSSF districts. In third to fifth grade mathematics, 15 of the 16 DSSF districts posted proficiency percentages at least slightly below the average for other NC districts, and one fell 18 points below the rest-of-state average. One DSSF district bested the rest-of-state third to fifth grade mathematics proficiency rate by approximately half a percentage point.

In sixth to eighth grade reading and mathematics, 15 DSSF districts fell below the proficiency rate for the rest of the state. Two DSSF districts fell more than 20 percentage points below the rest-of-state proficiency average in both reading and mathematics. One bested the 87% average of the rest of the state in reading, and another bested the 88% average in mathematics both by about three percentage points.

Thus, between grades three-five and grades six-eight, reading proficiency rates fell slightly (two percentage points) in DSSF districts, slightly more than the rest of the state. However, the gap in the percent proficient in mathematics between DSSF and non-DSSF districts rose from approximately six points in grades three-five to almost eight points in grades six-eight.

Table 2.1
2005 Reading and Math Proficiency Levels

	Grades 3-5		Grades 6-8	
	Reading	Math	Reading	Math
	% Proficient	% Proficient	% Proficient	% Proficient
Rest of NC	87.81	92.93	86.79	87.90
All 16 DSSF Districts	79.87	87.27	78.18	80.44
Edgecombe	75.81	87.61	75.92	79.93
Franklin	83.66	86.96	83.90	81.40
Halifax	78.19	86.87	82.01	76.04
Hertford	73.29	84.01	72.30	77.89
Hoke	83.37	91.19	73.32	78.57
Hyde	82.67	93.42	78.44	87.26
Lexington City	82.21	89.47	79.62	81.85
Montgomery	89.12	92.01	80.17	90.16
Northampton	81.25	83.33	89.94	76.40
Pasquotank	81.62	88.59	75.56	80.82
Robeson	76.65	84.93	76.13	80.69
Thomasville City	74.19	77.71	77.76	79.35
Vance	81.92	92.81	76.01	78.41
Warren	80.38	86.08	76.75	79.33
Washington	69.06	80.19	65.95	69.84
Weldon City	66.93	74.80	63.18	66.43

K-8 Reading and Mathematics Proficiency Levels in DSSF and Non-DSSF Districts by Socioeconomic and Ethnic Subgroups

We turn now to an examination of the performance of low-income and minority students in DSSF districts compared to other students in the DSSF districts and in comparison to low income, minority, and other students in non-DSSF districts. (See Table 2.2 below.)

Across grade levels and subjects, low income and minority students in DSSF districts posted lower proficiency rates than other students in DSSF districts, their low income and minority peers in non-DSSF districts, and than their more advantaged peers in non-DSSF districts. As one would expect, by far the largest proficiency gaps were between low income and minority students in DSSF districts and higher income, non-minority students in non-DSSF districts – gaps of more than 30 percentage points.

K-8 Reading

In the 16 DSSF districts, grade three- five students receiving free or reduced price lunch (FRL) posted reading proficiency rates about 17 percentage points lower than non-FRL students in DSSF districts and more than five points lower than FRL students in other NC districts. The reading proficiency rates for grades six- eight FRL students in DSSF districts were 17 percentage

points lower than non-FRL students in DSSF districts, slightly more than five points lower than reading proficiency rates for FRL students in non-DSSF districts.

In the DSSF districts, grade three-five reading proficiency rates for African-American students were more than 15 percentage points lower than proficiency rates for White students in these districts and about 4 points lower than reading proficiency rates for African-American students in non-DSSF districts. A gap of about 18 points existed between African-American students in the DSSF districts and White students in non-DSSF districts. In DSSF districts, grade six-eight reading proficiency rates for African-American students were almost 18 percentage points lower than for White students in DSSF districts and about five points lower than for African-American students in other NC districts. A very large 21 point gap exists between African-American students in the DSSF districts and White students in non-DSSF districts.

In DSSF districts, grade three-five reading proficiency rates for Hispanic students were 11 points lower than for White students in DSSF districts and about three points lower than for Hispanic students in other NC districts. Grade six-eight reading proficiency rates for Hispanic students in DSSF districts were about 14 points lower than for White students in DSSF districts and about four points lower than for Hispanic students in non-DSSF districts. Reading proficiency rates for Hispanic six-eight grade students in the DSSF districts were about 17 points lower than for White students in non-DSSF districts.

K-8 Mathematics

When analyzed by these same characteristics, a lower percentage of low income and minority students in the DSSF districts achieved proficiency on the EOG math tests than their counterparts in the rest of the state (Table 2.2). In the 16 DSSF districts, grade three-five students receiving free or reduced price lunch (FRL) posted math proficiency rates about 12 points lower than non-FRL students in DSSF districts and about five points lower than FRL students in other NC districts. Math proficiency rates for grade six-eight FRL students in the pilot districts were 16 percentage points lower than non-FRL students in DSSF districts and a little more than four points lower than math proficiency rates for FRL students in non-DSSF districts.

In the DSSF districts, grade three-five math proficiency rates for African-American students were more than 10 percentage points lower than proficiency rates for White students in DSSF districts and just over two points lower than math proficiency rates for African-American students in non-DSSF districts. A gap of about 13 points existed between African-American students in the DSSF districts and White students in non-DSSF districts. In DSSF districts, grade six-eight math proficiency rates for African-American students were almost 15 percentage points lower than for White students in DSSF districts and about three points lower than for African-American students in other NC districts. A 19 point gap in math proficiency existed between African-American student in the DSSF districts and White students in non-DSSF districts.

In DSSF districts, grade three-five math proficiency rates for Hispanic students were three points lower than for White students in DSSF districts and about two points lower than for Hispanic students in other NC districts. Grade six-eight math proficiency rates for Hispanic students in DSSF districts were about 8 points lower than for White students in DSSF districts and about

two points lower than for Hispanic students in non-DSSF districts. Mathematics proficiency rates for Hispanic six-eight grade students in the DSSF districts were approximately 11 percentage points lower than White students in non-DSSF districts.

Table 2.2
2005 Reading and Math Proficiency by Socio-Demographic Level

		Grades 3-5		Grades 6-8	
		Reading	Math	Reading	Math
		% Proficient	% Proficient	% Proficient	% Proficient
Rest of NC		87.81	92.93	86.79	87.90
All 16 DSSF Districts		79.87	87.27	78.18	80.44
Free / Reduced Lunch	Rest of NC	80.17	88.11	77.56	79.72
	16 DSSF	74.97	83.93	72.19	75.29
Not Free/Reduced Lunch	Rest of NC	94.33	97.06	92.14	94.15
	16 DSSF	91.76	95.37	88.75	91.15
White	Rest of NC	92.72	96.28	92.44	93.21
	16 DSSF	89.22	93.31	89.28	89.57
African-American	Rest of NC	78.70	85.76	76.18	77.13
	16 DSSF	74.75	83.25	71.31	74.01
Hispanic	Rest of NC	81.49	92.10	79.40	83.98
	16 DSSF	78.22	89.96	75.03	81.55
Other	Rest of NC	88.68	92.93	84.57	88.77
	16 DSSF	76.57	87.27	72.03	81.76

Changes in Proficiency Level

To gain an understanding of changes in proficiency rates from one year to the next in both DSSF districts and non-DSSF districts, we compared the proficiency levels of individual students in 2004 with their proficiency levels in 2005. For both reading and mathematics, we identified students who were not proficient in a given grade in 2004 but who did achieve proficiency in the

next grade in 2005. Similarly, we identified students who were proficient in a given grade in 2004 who were then not proficient in 2005. For a given grade transition – say, from grade 3 to grade 4 – we then counted all of the students who “gained” proficiency and all of the students who “lost” proficiency. Then, we calculated the percentage of a district’s Average Daily Membership for the grade level these proficiency gains and losses represented. We subtracted the losses from the gains and calculated a “net change” percentage for the DSSF district and for the rest of the districts in the state.

In order to determine the grade levels at which the largest percentages of students either gained or lost proficiency, we performed these calculations across different grade levels in reading and mathematics separately. The tables displayed below highlight two distinct trends in the two skill areas.

Mathematics

In mathematics, there was evidence of a slow decline in the percentage of students who tested at the proficient level between the third and the eighth grade. Moreover, on average, this decline across grades was more pronounced in the DSSF districts than in the rest of the state at both the elementary and middle school levels (See Table 2.3).

From 2004 to 2005 in grades three-five, about 6.9% of students in DSSF districts fell from proficient to not-proficient in mathematics, compared to a loss in mathematical proficiency of 3.6% in the rest of the state (Table 2.3). Across that same set of grade levels, a smaller percentage of students in DSSF districts (5%) moved from not-proficient to proficient. Therefore, there was a net loss of nearly 2% in students testing at the proficient level in mathematics between 2004 and 2005. This is larger than the net loss of 0.12% in mathematical proficiency in the rest of the state.

Turning to socio-demographic breakdowns, in DSSF districts from 2004 to 2005, there was a net loss of 2.6% three-five grade FRL students testing at proficient levels. Moreover, among African-American students in DSSF districts, there was a net loss of proficiency of about 1.9 % across the same two years. These represent greater proficiency losses than for other students in DSSF districts and for FRL students or African-American students elsewhere in the state.

Table 2.3
Shift in Proficiency Levels – Mathematics Grades 3-5

		Shift in Proficiency Levels		
		% Gained Proficiency (1/2 → 3/4)	% Lost Proficiency (3/4 → 1/2)	Net Percent Change
Rest of NC		3.45	3.57	-0.12
All 16 DSSF Districts		4.94	6.89	-1.95
Free / Reduced Lunch	Rest of NC	5.58	5.80	-0.22
	16 DSSF	6.06	8.66	-2.60
Not Free/ Reduced Lunch	Rest of NC	1.63	1.66	-0.03
	16 DSSF	2.21	2.60	-0.39
White	Rest of NC	1.94	3.09	-0.23
	16 DSSF	2.72	4.87	-1.43
African- American	Rest of NC	6.51	6.76	-0.25
	16 DSSF	6.76	8.65	-1.89
Hispanic	Rest of NC	5.03	3.86	1.17
	16 DSSF	4.83	5.84	-1.02
Other	Rest of NC	3.45	3.57	-0.12
	16 DSSF	4.94	6.89	-1.95

Compared with the loss in mathematical proficiency over grades three-five, the results from middle school (grades six-eight) show a larger net loss in the percentage of students who were unable to maintain their proficiency status and fell into the not-proficient category. By the end of the eighth grade, a net of about 3.6% of the students in the DSSF districts lost proficiency from 2004 to 2005 (Table 2.4), compared with a net loss of about 2.6% in other NC districts. In DSSF districts, about 4.5% of FRL students, about 4.3% of African-American students, and about 1.7% of Hispanic students lost proficiency from 2004 to 2005.

For grades six-eight students overall and for FRL, White, and Hispanic students in those grades, the net losses in mathematical proficiency rates from 2004 to 2005 were greater in DSSF districts than in other NC districts. Interestingly, this advantage to non-DSSF districts did not hold for African-American students (Table 2.4). In DSSF districts, African-American students in grades 6 through 8 still lost ground from 2004 to 2005, but they lost very slightly less ground than did African-American students in other NC districts.

Table 2.4
Shift in Proficiency Levels – Mathematics Grades 6-8

		Shift in Proficiency Levels		
		% Gained Proficiency (1/2 → 3/4)	% Lost Proficiency (3/4 → 1/2)	Net Percent Change
Rest of NC		3.27	5.88	-2.61
All 16 DSSF Districts		5.81	9.40	-3.59
Free / Reduced Lunch	Rest of NC	5.16	9.40	-4.24
	16 DSSF	7.19	11.69	-4.49
Not Free/ Reduced Lunch	Rest of NC	1.83	3.19	-1.36
	16 DSSF	2.94	4.64	-1.70
White	Rest of NC	1.98	3.71	-1.73
	16 DSSF	2.95	5.56	-2.61
African- American	Rest of NC	5.65	10.35	-4.70
	16 DSSF	7.74	12.05	-4.32
Hispanic	Rest of NC	5.24	6.89	-1.65
	16 DSSF	5.28	8.19	-2.91
Other	Rest of NC	3.27	6.05	-2.78

Reading

As we have just seen, from 2004 to 2005 mathematics proficiency rates showed a small loss in grades three-five and a larger loss in grades six-eight (Table 2.5). However, the pattern for reading is very different.

From 2004 to 2005, students in grades three-five actually posted a net gain in the percent proficient in reading, both in non-DSSF districts (+2.66%) and in DSSF districts (+2.04%). The gains held for all socioeconomic and ethnic groups of students except for students we grouped in the single ethnic category of “Other,” for whom there were very small net reading proficiency losses in grades three-five in non-DSSF districts (-.4%) and greater losses in DSSF districts (-3.6%).

Table 2.5
Shift in Proficiency Levels – Reading grades 3-5

		Shift in Proficiency Levels		
		% Gained Proficiency (1/2 → 3/4)	% Lost Proficiency (3/4 → 1/2)	Net Percent Change
Rest of NC		6.98	4.32	2.66
All 16 DSSF Districts		9.18	7.14	2.04
Free/ Reduced Lunch	Rest of NC	10.58	6.53	4.05
	16 DSSF	10.96	8.87	2.10
Not Free/Reduced Lunch	Rest of NC	3.92	2.43	1.48
	16 DSSF	4.84	2.94	1.91
White	Rest of NC	4.57	2.96	1.61
	16 DSSF	5.41	3.93	1.48
African-American	Rest of NC	11.26	7.04	4.22
	16 DSSF	11.50	8.60	2.90
Hispanic	Rest of NC	10.50	5.24	5.26
	16 DSSF	10.18	5.80	4.38
Other	Rest of NC	3.13	3.56	-0.43
	16 DSSF	4.81	8.40	-3.59

In grades six-eight, however, there was a sharp net loss in reading proficiency rates from the fifth to the sixth grade, a loss which was exceeded by sizable gains from grade six to grade seven and grade seven to grade eight (See Table 2.6). The sixth grade net losses were worse across all groups in DSSF districts than they were in non-DSSF districts. However, for nearly all groups the seventh and eighth grade gains were actually greater in DSSF districts than in other districts.

The sizable net loss in proficiency from fifth to sixth grade, the subsequent gains in seventh and eighth grades, and the striking fact of greater gains in DSSF than in non-DSSF districts represent very important phenomena for careful investigation in future reports in this study. Why did students across all groups lose reading proficiency from grade five to grade six? One possibility is that the loss stemmed from the general social and emotional turmoil occasioned by the transition from elementary school (usually in grade 5) to much larger, more impersonal, and more conflict-ridden middle schools. If the elementary-to-middle school transition were the cause, one would expect to see a sharp fifth to sixth grade drop in mathematics as well as in reading. Instead, the long, slow decline in mathematics proficiency rates extended over the three - eight grade levels, accelerating slowly, not suddenly at the fifth to sixth grade juncture. Why, too, did students gain so steeply in the seventh and eighth grades in reading when no similar gain

was seen in mathematics? Additionally, why were the net gains in proficiency greater in DSSF than non-DSSF districts?

It seems likely that this signature combination of gains and losses has something to do with schooling – not just with the onset of adolescence and the shift to bigger schools. If so, further investigation could prove extremely productive. It may uncover lessons that could guide significant improvements in student learning.

Table 2.6
Shift in Proficiency Levels – Reading grades 6, 7, 8

		Grade 5-6			Grade 6-7			Grade 7-8		
		% Gained Proficiency (1/2 → 3/4)	% Lost Proficiency (3/4 → 1/2)	Net Percent Change	% Gained Proficiency (1/2 → 3/4)	% Lost Proficiency (3/4 → 1/2)	Net Percent Change	% Gained Proficiency (1/2 → 3/4)	% Lost Proficiency (3/4 → 1/2)	Net Percent Change
Rest of NC		2.27	8.89	-6.61	8.11	3.15	4.95	5.82	3.27	2.54
All 16 DSSF Districts		4.25	13.12	-8.87	11.41	5.12	6.28	8.55	5.39	3.15
Free/ Reduced Lunch	Rest of NC	3.21	12.40	-9.19	11.22	4.33	6.90	8.45	4.85	3.60
	16 DSSF	4.75	14.32	-9.57	12.91	5.10	7.81	9.32	6.41	2.92
Not Free/ Reduced Lunch	Rest of NC	1.25	4.88	6.13	4.80	1.91	2.89	3.41	1.76	1.64
	16 DSSF	2.33	6.60	8.93	6.97	2.98	3.99	5.11	2.53	2.57
White	Rest of NC	1.51	5.64	-4.13	5.14	2.44	2.70	3.67	2.12	1.55
	16 DSSF	2.14	6.66	-4.52	6.63	3.38	3.25	4.69	2.90	1.78
African-American	Rest of NC	3.60	15.44	-11.84	13.47	4.77	8.70	9.56	5.65	3.91
	16 DSSF	5.24	16.81	-11.57	14.11	6.07	8.04	10.57	6.87	3.70
Hispanic	Rest of NC	3.44	10.40	-6.96	12.60	3.07	9.53	9.54	3.84	5.70
	16 DSSF	5.11	13.81	-8.71	9.15	3.39	5.76	9.56	6.14	3.41
Other	Rest of NC	2.05	9.34	-7.28	7.82	3.03	4.79	5.24	2.75	7.99
	16 DSSF	4.86	14.36	-9.50	13.77	6.33	7.44	10.36	5.72	16.07

Grade Level Trends

While the previous analysis examined student changes in proficiency for individual students from 2003-2004 to 2004-2005, we also looked backwards at the patterns of the eighth graders in 2004-2005 and examine their movements into and out of proficiency from the time they were in the third grade. Using students who took the eighth grade EOG math and reading tests in 2005, we present the percentage of these students who were proficient at each grade level, starting when they were in the third grade.

In attempting to show the progress of this cohort of students across grades, we encountered a complication. The End-of-Grade test in mathematics was changed for the 2002 administration of the test and rescaled. To solve this problem, we expressed average End of Grade scale score the cohort of students as a percentage of the proficiency “cut score” – that is, of the score that a student had to earn in a given subject in a given grade in order to be considered proficient in that subject. For example, a student who scored exactly the proficiency cut score would score 100% of the cut score. A student who missed the cut score by only a few points might have scored at 95% of the cut score, and one who scored well above it might have scored at 125% of the cut score.

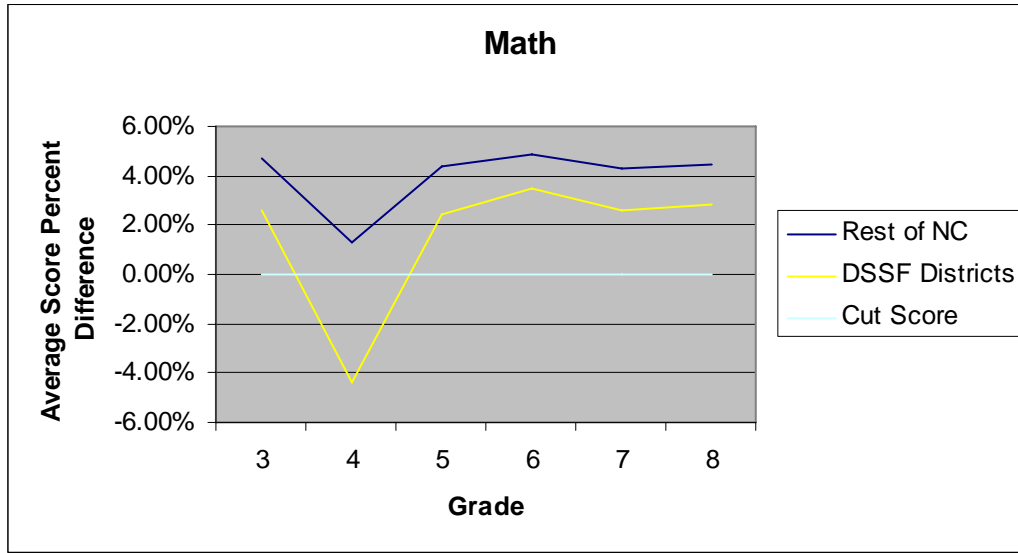
No matter how the scaling of test scores might have changed or what the specific cut score might have been on a given scale, expressing the actual score as a percentage of the cut score gives us a number that can be compared with other years and other cohorts of students

The graphs throughout the following section simply show the number of percentage points by which the actual score of the cohort of students exceeded or fell below the cut score in any given year. For example, if in a given year, students averaged 105% of the cut score, we would be able to show that on the graph as five percentage points above the cut score, which for convenience in scaling our graphs we called zero. Likewise, if our cohort of students averaged a score that was 95% of the cut score, we could display this as five points below the cut score – five points below zero on the graph. The graphs below use this convention.

Mathematics

For the end of grade mathematics tests, there was a significant drop at the end of fourth grade when the test was rescaled. Among students in DSSF districts, the average score dropped from 2% above the cut score to 4% below the passing cut score (Figure 2.1). The corresponding dip in non-DSSF districts was approximately half as large, and the rest-of-state average remained approximately 1.5 points above the cut score. In other grades, the average test scores as a percentage of the cut scores remained relatively consistent. Students in DSSF districts scored approximately three percentage points above the cut score compared to slightly more than four points above the cut score for the rest of the state.

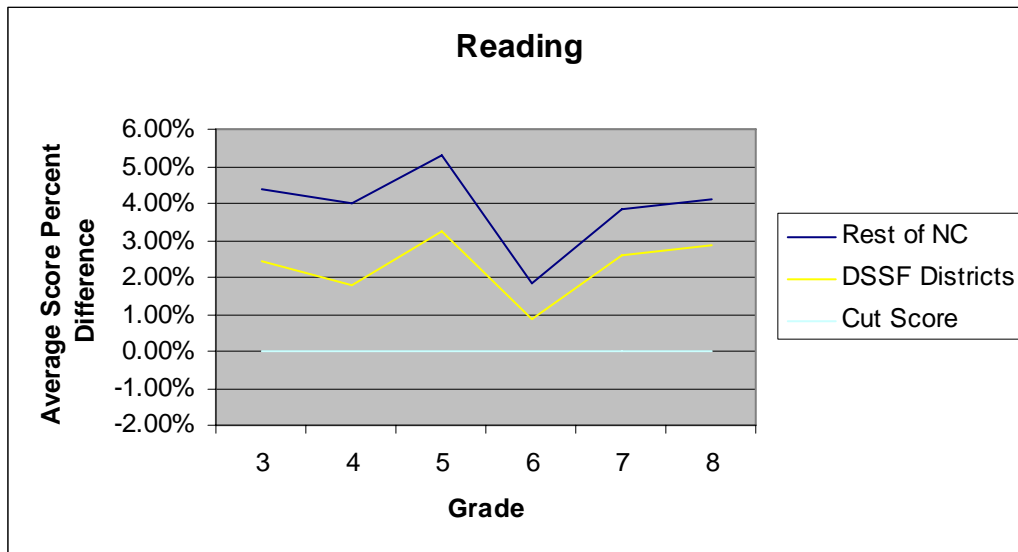
Figure 2.1
Cut Score Comparisons for End of Grade Test – Mathematics



Reading

For the EOG reading tests, the average score expressed as a percentage of the cut score dipped when the 2004-2005 eighth grade students were in the sixth grade (Figure 2.2). This corresponds to the year that the reading test was rescaled (2003). There was an obvious increase in test scores during the fifth grade, with students in DSSF districts scoring 3% above the cut score and students in the rest of the state scoring over 5% above the cut score. The average test scores increased steadily during the seventh and eighth grade, but not quite to the level of their fifth grade scores. Akin to the math scores, students in the DSSF counties consistently scored lower than their counterparts in the rest of the state.

Figure 2.2
Cut Score Comparisons for End of Grade Test – Reading



End of Course Proficiency Levels

Finally, for students who were in at least the ninth grade during the 2004-2005 school year, we analyzed their End of Course test scores for Algebra I, English I, and Biology. Students were divided into *proficient* and *not-proficient* categories based on their eighth grade End of Grade tests. If a student scored a Level 1 or Level 2 (not-proficient) on their mathematics or reading EOG test for eighth grade, they were put in the “not-proficient”, at-risk category for the purpose of this analysis. The students who achieved Level 3 or Level 4 on both the reading and mathematics EOG tests in the eighth grade were categorized as “proficient”. Those categories were then compared to their high school End of Course test outcomes. These data represent all students who were in grades 9-12 during the 2005 school year, so their EOC tests may have been taken before the 2005 school year.

Overall, students who were not-proficient in the eighth grade were unlikely to pass their EOC tests for these basic subjects. Less than half of students who were not-proficient in the eighth grade were able to pass their Algebra I or English I EOC tests (Table 2.7), whether these students were in the DSSF districts or other districts. The Biology pass rate for not-proficient eighth graders was shockingly low – 15% for the DSSF districts and 17% for the rest of the state.

Table 2.7
End of Course Proficiency Based on Eighth Grade Proficiency Levels

	% Proficient Algebra I		% Proficient English I		% Proficient Biology	
	8 th Grade Not-Proficient	8 th Grade Proficient	8 th Grade Not-Proficient	8 th Grade Proficient	8 th Grade Not-Proficient	8 th Grade Proficient
Rest of NC	48.80%	92.15%	42.19%	92.70%	17.42%	77.03%
All 16 DSSF Districts	48.62%	87.23%	39.15%	87.49%	15.47%	66.31%

Among all non-DSSF districts, 92% of the students who tested proficient in the eighth grade tested proficient in Algebra I (Table 2.8). This compares to 87% of Algebra I students in the DSSF counties who had tested proficient in the eighth grade. However, there was wide variation among the DSSF districts themselves. The percentage of eighth grade proficient students testing proficient in Algebra I ranged from 69% to 97%. Among the individual DSSF districts, for students who did not test proficient in the eighth grade, anywhere from 28 to 67% tested proficient for Algebra I.

Table 2.8
End of Course Algebra I Proficiency
Based on Eighth Grade Proficiency Levels

	% Proficient Algebra I	
	8 th Grade Not-Proficient	8 th Grade Proficient
Rest of NC	48.80%	92.15%
All 16 DSSF Districts	48.62%	87.23%
Edgecombe	52.83%	88.20%
Franklin	49.37%	90.13%
Halifax	30.91%	75.59%
Hertford	28.25%	69.27%
Hoke	48.28%	87.03%
Hyde	66.67%	91.67%
Lexington City	30.33%	73.08%
Montgomery	67.23%	95.75%
Northampton	54.01%	82.38%
Pasquotank	36.00%	83.17%
Robeson	57.01%	89.08%
Thomasville City	61.43%	89.29%
Vance	56.32%	90.03%
Warren	42.39%	83.50%
Washington	52.94%	97.08%
Weldon City	52.27%	77.10%

The pattern is similar for the English I EOC test (Table 2.9). Among students who tested as proficient in eighth grade, a higher percentage of students in the rest of the state tested as proficient in English I (92.70%) compared to the students in the DSSF districts (87.49%). Again, there was variation among the DSSF districts for students who were proficient in the eighth grade. One district tested slightly above the state average, at 93.38%, and two more were extremely close at 92.42% and 92.67%. The lowest district tested at 79.50%.

Among all students who did not test as proficient in the eighth grade, there was only a slight difference between students in the DSSF districts (39.15%) and the rest of the state (42.19%). DSSF districts saw a third of students who did not test as proficient in the eighth grade, test proficient on the English I EOC test.

Table 2.9
End of Course English I Proficiency
Based on Eighth Grade Proficiency Levels

	% Proficient English I	
	8 th Grade Not-Proficient	8 th Grade Proficient
Rest of NC	42.19%	92.70%
All 16 DSSF Districts	39.15%	87.49%
Edgecombe	43.24%	90.79%
Franklin	44.51%	92.42%
Halifax	31.38%	80.00%
Hertford	31.72%	79.50%
Hoke	46.73%	91.24%
Hyde	31.58%	91.23%
Lexington City	38.97%	87.76%
Montgomery	42.93%	92.69%
Northampton	35.91%	84.86%
Pasquotank	41.74%	90.24%
Robeson	36.76%	83.88%
Thomasville City	46.81%	93.38%
Vance	37.04%	85.63%
Warren	39.22%	87.78%
Washington	39.38%	81.56%
Weldon City	43.00%	80.00%

The pattern among proficient students was even more alarming for the Biology EOC test. Among all students in the DSSF districts who tested proficient in the eighth grade, 66% achieved a proficient score on the EOC Biology test, compared to 77% of students in the rest of the state (Table 2.10). Among the individual DSSF districts, only Thomasville City (82%) exceeded the rest of state average. By comparison, in another district, only 39% of proficient eighth grade students tested proficient in Biology.

Among the students who did not test proficient in the eighth grade, there was a slight difference in the percentage of students who were able to test proficient in Biology -- nearly 17% of students in the rest of the state, compared to 15% of students in the DSSF district. However, five DSSF districts exceeded the state average, with more than 20% of their not-proficient students passing the Biology EOC. Still, in one district, less than 3% of students who did not meet proficiency standards in the eighth grade tested proficient in Biology.

Table 2.10
End of Course Biology Proficiency
Based on Eighth Grade Proficiency Levels

	% Proficient Biology	
	8 th Grade Not-Proficient	8 th Grade Proficient
Rest of NC	17.42%	77.03%
All 16 DSSF Districts	15.47%	66.31%
Edgecombe	23.66%	74.59%
Franklin	20.00%	69.96%
Halifax	5.20%	38.58%
Hertford	2.73%	47.58%
Hoke	9.55%	61.36%
Hyde	10.00%	58.57%
Lexington City	21.35%	71.73%
Montgomery	14.52%	76.28%
Northampton	12.94%	61.36%
Pasquotank	12.68%	65.17%
Robeson	21.28%	69.78%
Thomasville City	28.57%	81.56%
Vance	7.29%	60.32%
Warren	17.95%	53.87%
Washington	14.78%	53.30%
Weldon City	14.04%	65.38%

Conclusion

Students in the DSSF districts were less likely to achieve proficiency in either reading or math during their elementary and middle school years. The differences ranged between six and eight percentage points. Poor children and minorities performed more poorly on End of Course and End of Grade exams in the DSSF districts than they did in other districts in the state. In addition, minority children in DSSF districts were less likely to achieve proficiency than White students, and economically disadvantaged students were less likely to achieve proficiency than their more advantaged peers.

The differences in proficiencies got larger as the children progressed through elementary and middle school. While the End of Grade test in mathematics showed gradual erosion from one grade to the next, the End of Grade reading tests showed a dramatic decrease between the fifth and sixth grade, then an increase in both seventh and eighth grade. The increases in late middle

school barely allowed the students to regain the levels of proficiency exhibited in the fifth grade. In both reading and math, more children, mainly those scoring at Level 3, fell below proficiency than gained proficiency, indicating that an exclusive focus on students scoring below proficiency is unlikely to be sufficient to increase the number of children achieving proficiency each year.

The analysis of high school End of Course proficiency highlights a significant problem for the DSSF districts and the rest of the state – failure to achieve proficiency in reading and math by the end of the eighth grade meant there was little chance of passing End of Course tests required for high school graduation. Only two logical solutions to this problem exist: Districts must either increase student proficiency during middle school, or they must recover the not-proficient students in high school, if graduation rates and scores on End of Course exams are to increase.

Chapter 3: The Distribution of Quality Teachers and Principals in North Carolina

In his *Leandro* rulings, Judge Howard Manning has emphasized that in order to fulfill its constitutional obligation to provide North Carolina's students an equal opportunity to receive a sound, basic education, the State must assure that all students have access to a school with a principal who leads effectively, qualified and competent teachers, and adequate resources for teachers to do their jobs well. In initiating the pilot phase of the Disadvantaged Student Supplemental Fund during the 2004-2005 school year, Governor Easley and the State Board of Education seem to have agreed. The central purpose of the DSSF pilot program was to improve learning opportunities and outcomes for disadvantaged students in the 16 pilot districts, in part by improving the quality of teachers in those districts. By extending the pilot for a second year (2005-2006), the General Assembly also appears to have concurred with the opinion that teacher quality is crucial to student learning.

Using NCDPI data from the 2004-2005 school year – before DSSF funds began to reshape teacher quality in the pilot districts – we have found that there was ample reason to question whether teacher quality in the pilot districts was equal to that in other districts across the state. On all eleven variables we used to index teacher quality, the average quality of teachers in the set of 16 pilot DSSF districts was lower than the average quality of teachers in the rest of North Carolina's districts. On certain specific variables, one or a few individual DSSF districts exceeded the average North Carolina district. However, these are only individual exceptions to a strong pattern of lower teacher quality in the 16 pilot districts.

In considering whether the State is meeting its constitutional obligation to provide all students an equal opportunity to a sound, basic education, it is important to recall Judge Manning's finding that student achievement in low wealth districts is only part of the issue. There are other gaps he identified among disadvantaged students and other students in districts all across the state.

In this light, a second broad finding from the 2004-2005 data on teacher quality is even more disturbing. On every teacher quality variable in both DSSF districts and across the rest of the state, disadvantaged students received substantially less access to high quality teachers than did their more advantaged peers. This was true without exception at every level of the K-12 system (elementary, middle, and high school) in North Carolina, and held true when *disadvantage* was defined in either academic or economic terms. This also held true for minority students, who received substantially less access to quality teachers than did their White peers. On no indicator of teacher quality did disadvantaged students receive comparable access to teachers of the same quality assigned to their more advantaged peers. On most variables at all levels of the system, the quality gaps were substantial, and the differences between the quality of teachers teaching disadvantaged students in DSSF districts and those teaching more advantaged students in non-DSSF districts were often sizeable. To cite only one of many examples, in high school subjects with End of Course tests, on average a previously low-achieving high school student in a DSSF district (one who scored as non-proficient the year before) was taught by a teacher licensed to teach that subject just 52.8% of his or her time in school. A previously proficient high school student in a non-DSSF district was taught by a teacher licensed to teach the subject 70.2% of the time.

In the remainder of this chapter, we first provide a summary of research which confirms the importance of teacher quality to student learning. Next, we present a snapshot of teacher quality in DSSF and non-DSSF districts in 2004-2005. Then, we turn to an examination of the distribution of teacher quality across different subgroups of students at the elementary, middle, and high school levels. Finally, we conclude with a summary of teacher quality in DSSF and non-DSSF districts.

Prior Research: Teacher Quality Matters

Of ultimate concern to state education policymakers, including the Governor, the State Board of Education, the Superintendent of Public Instruction, and members of the General Assembly, are the ways in which teacher quality shapes student learning outcomes, and whether the DSSF pilot has improved teacher quality and student outcomes in the pilot districts. In a series of future reports (the first of which will focus on high schools), we will present the results of analyses designed to determine whether and to what extent the teacher quality variables reported in the balance of this report actually affected student outcomes in North Carolina in 2004-2005. These analyses are currently being conducted and are not yet available for publication. In the meantime, we include in this report a synopsis of existing research about the impact of teacher quality. Based on prior research, it is likely that the differences in teacher quality described in detail in the sections below do affect student learning outcomes in the state.

Research generally supports the proposition that teacher quality shapes student outcomes (Ferguson, 1998; Hanushek, Kain, and Rivkin, 1999; Jordan, Mendro, and Weersinghe, 1997; Sanders and Rivers, 1996; Wright, Horn, and Sanders, 1997). Research is not always unequivocal about which specific dimensions of teacher quality actually make a difference in student outcomes, but it is reasonably clear that certain variables probably do matter. Teachers scoring higher on tests of verbal ability and teachers with higher general academic proficiency appear to be more effective in promoting student learning, presumably because they are better at presenting material clearly and helping students understand course content (Bowles and Levin, 1968; Coleman et al., 1966; Hanushek, 1971; Murnane, 1985; Strauss and Vogt, 2001). Simply holding an advanced degree may not improve teacher and student performance, but advanced education in the subject that the teachers actually teaches does seem to increase teachers' effectiveness (Hawk, Coble, and Swanson, 1985). Coursework in teaching and learning also seems to help (Ferguson and Womack, 1993), especially in combination with solid subject matter knowledge (Druva and Anderson, 1983). Formal teacher preparation and licensure requirements seem to help assure that teachers have both of these (Darling-Hammond, Holtzman, and Heilig, 2005). Inexperienced teachers are generally less effective than teachers with three to five years or more of experience (Klitgaard and Hall, 1974; Murnane and Phillips, 1981; Rosenholtz, 1986). However, after about twenty-five years in the classroom, many teachers' effectiveness seems to decline. Not surprisingly, the evidence seems strongest for teachers with a combination of strong subject matter knowledge, knowledge of teaching and learning, and several years of experience (Ferguson, 1991; Ferguson and Ladd, 1996). Some research indicates that National Board Certified Teachers are more effective than their uncertified counterparts (Goldhaber and Anthony, 2004). Finally, a teacher who is intellectually able, well-prepared, and experienced in teaching a particular subject at a particular grade level is not necessarily effective in teaching other subjects or at other grade levels (Darling-Hammond,

1992; Druva and Anderson, 1983; Goldhaber and Brewer, 1997; Goldhaber and Brewer, 2000; Hawk, Coble, and Swanson, 1985; Monk, 1994; Monk and King, 1994; Shulman, 1987).

Overall Teacher Quality in End of Course Classes in DSSF Districts in 2004-2005

Before we could determine whether the two-year DSSF pilot improved teacher quality, it was necessary to establish a baseline, a clear picture of teacher quality in these districts before the program began to register its effects. For this purpose we have relied on data from the 2004-2005 school year. Districts did receive DSSF funds in 2004-2005, but they actually got their DSSF funding well into that year, and most initiated their DSSF-supported efforts only in the spring semester. As a result, it seems unlikely that the program exerted any great effect on the teaching force in pilot districts during that first year. Thus, it seems reasonable to treat information about teacher quality in the pilot districts during 2004-2005 as the most recent and therefore best baseline information against which data from subsequent years can be contrasted to measure the extent to which the program has changed teacher quality in the districts.

This section summarizes what 2004-2005 data from DPI tell us about teacher quality in DSSF districts compared with teacher quality in other districts across the state. The DPI data measure many of the teacher quality variables that research suggests are important – sometimes squarely and directly, sometimes only approximately and indirectly. Taken as a whole, the data give us a reasonable set of indicators of teacher quality, both in the DSSF districts and statewide. In this chapter, we compare the quality of teachers in DSSF districts with the quality of teachers in other districts statewide, as measured by: (a) the percentage of teachers with a bachelor's degrees from a "very competitive" or "competitive" institution of higher education, an indirect measure of their general academic proficiency; (b) the percentage of teachers with Master's degrees; (c) the percentage of teachers with top quartile and above-the-mean scores on PRAXIS tests, an indicator that measures their knowledge of the subject matter they teach, how students learn it, and how to teach it; (d) the percentage of teachers at various levels of licensure and advanced certification status; and (e) the percentages of teachers in their first year of teaching and those with more than three years of experience. We also include data on teacher turnover in districts across the state. Data on these variables for DSSF and non-DSSF districts as sets and for individual DSSF districts are presented in Table 3.1 on the following page.

**Table 3.1
Teacher Quality by DSSF District**

	% at least a masters degree	% Most and Highly Competitive Bachelors	% in top Quartile of Praxis	% above mean of Praxis	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Highly Qualified	% First year teachers	% More than 3 years teaching	District Turnover
Rest of NC	30.43	9.70	37.59	66.69	83.49	3.86	1.90	7.37	90.98	4.34	78.63	15.43
All 16 DSSF Districts	24.61	9.03	25.95	53.92	76.51	8.20	4.20	3.17	88.82	7.35	74.87	19.57
Edgecombe	21.47	9.57	31.82	55.68	79.12	7.12	2.20	4.20	90.16	10.25	71.82	23.47
Eliz. City/ Pasquotank	26.51	9.65	24.10	55.42	79.52	9.01	0.30	5.32	89.47	3.40	81.23	20.30
Franklin	20.61	8.45	34.35	61.83	73.47	8.45	5.40	1.37	89.95	8.90	69.79	22.15
Halifax	16.61	8.54	17.74	38.71	71.32	12.69	9.81	2.14	87.54	13.48	67.78	23.51
Hertford	19.74	8.55	19.64	33.93	74.89	9.69	5.29	2.14	86.75	7.96	76.11	23.62
Hoke	20.86	8.04	15.38	47.25	69.75	10.15	2.47	0.89	87.20	9.03	71.06	23.78
Hyde	22.00	9.26	30.00	60.00	74.00	12.0	0.00	1.85	83.33	4.35	84.78	20.99
Lexington City	15.68	10.47	21.57	54.90	75.14	5.95	2.16	3.14	92.67	5.52	66.85	15.98
Montgomery	30.89	9.58	42.14	73.58	87.96	4.65	1.12	5.49	90.89	3.23	82.71	15.94
Northhampton	22.40	7.65	14.63	29.27	73.16	13.61	5.26	2.55	85.20	7.53	78.61	26.92
Robeson	29.54	8.18	19.77	48.45	80.26	5.61	2.85	4.68	88.29	5.73	77.13	13.71
Thomasville City	29.22	12.50	25.58	65.12	71.71	5.26	4.61	3.14	91.88	6.00	73.33	20.38
Vance	21.99	9.82	29.66	58.47	64.44	12.29	10.26	5.63	90.87	11.74	67.31	24.61
Warren	25.43	5.03	23.81	54.76	63.37	15.12	13.37	2.28	86.03	11.90	69.64	22.10
Washington	21.09	11.54	24.32	59.46	85.03	4.70	1.36	1.68	83.97	9.52	77.18	13.90
Weldon City	19.05	17.14	11.76	11.76	66.13	15.87	12.90	2.56	84.29	0.00	85.48	27.84

Across all indicators of education, test scores, licensure and certification status, and experience, teacher quality in the set of 16 DSSF districts was lower than in non-DSSF districts. On some variables the differences were small or very small. For example, there were only slight differences in the percentage of teachers who had bachelor's degrees from institutions of higher education with "Most Competitive" and "Highly Competitive" ratings by Barron's, an indicator of teachers' general academic proficiency. The percentage of teachers who were in the process of gaining a license via lateral entry, the percentage who were Highly Qualified according to the NCLB definition, and the percentage of teachers with more than three years of teaching experience also showed only slight differences between DSSF and non-DSSF districts. Often the differences are more substantial. For example, non-DSSF districts posted a much larger percentage of teachers who scored in the top quartile or above-the-mean on at least one PRAXIS II test, which measure knowledge of subject matter as well as teaching and learning of that subject matter. In addition to these measures of teacher quality, we also report the average percentage of teachers lost to the district from one year to the next. In this measure of teacher turnover, DSSF districts as a set fared substantially worse than non-DSSF districts.

On some specific variables, some individual DSSF districts showed overall teacher quality that matched or slightly exceeded the average for non-DSSF districts. Examples are Montgomery County on the percentage of teachers with at least a Master's degree; Lexington City, Thomasville City, Washington County, and Weldon City on the percentage of teachers whose bachelor's degree comes from an institution of higher education rated "most competitive" or "highly competitive"; Montgomery County on the percentage of teachers with at least one score in the top quartile/above the mean of at least one PRAXIS test; Hyde County on the percentage of lateral entry teachers; Vance County on the percentage of Highly Qualified teachers as defined by NCLB; Elizabeth City/Pasquotank, Montgomery County, and Weldon City on the percentage of teachers who were in their first year of teaching; and Elizabeth City/Pasquotank, Hyde County, Montgomery County, and Weldon City on the percentage of teachers with more than three years of teaching experience. Despite these exceptions for individual districts on individual variables, Table 3.1 reflects an overall pattern of somewhat lower teacher quality in DSSF districts than in other NC districts, not only as a set of 16 districts but also individually. This pattern is confirmed by the closer analysis presented in the next section.

Exposure to High Quality Teachers

In this section, we use a measure that is more precisely focused on the quality of the teachers who shape End-of-Grade (EOG) and End-of-Course (EOC) test outcomes than is the overall report of teacher quality in DSSF and other districts just discussed. By carefully combining several types of data supplied by DPI, we were able to connect individual teachers in grades with EOG exams and specific EOC subjects with individual students. With these data, we were able to not only contrast the quality of teachers teaching tested subjects across DSSF districts and other districts, we also were able to pinpoint how high quality teachers were distributed across students from different academic proficiency, economic, and racial/ethnic groupings in both DSSF and non-DSSF districts. Thus, at the high school level, for example, we could tell which teachers taught Algebra I to which students, not only within DSSF districts but statewide. With slightly less precision, we connected students with the teachers who taught them reading and mathematics at the elementary and middle school levels.

Using this information, we constructed an “exposure index.” The index tells us the percentage of an average school day that a given student was taught in grades with an EOG exam or in EOC-tested subjects by teachers with certain characteristics. For example, we were able to determine how much of the average school day an academically disadvantaged high school student in a DSSF district was taught a tested subject by a teacher with National Board Certification (NBCT). If the student were taught EOC subjects by Board certified teachers for two periods out of a seven period day, that would represent an exposure-to-NBCTs rate of about 29%. If a student who received a free or reduced price lunch were taught EOG- or EOC-tested subjects by an NBCT for one period out of a seven period day, it would represent a rate of exposure to NBCTs of about 14%.

We computed the percentage of time in school that students in DSSF districts were taught EOG- or EOC-tested subjects by teachers with different levels of teacher education, test scores, licensure and certification, and experience. We also noted the average size of the classes in which this teaching took place. We compared the exposure rates and class size averages for students in DSSF districts with the exposure rates and class size averages for students in non-DSSF districts. We also broke the exposure rates down by student race/ethnicity, eligibility for free or reduced price lunch, and the students’ prior year status on their ABC exams (proficient or not-proficient). For example, we display data that permit comparison of not-proficient students’ exposure to high quality teachers in DSSF districts with (1) proficient students’ exposure to high quality teachers within the DSSF districts, (2) not proficient students’ exposure to high quality teachers in non-DSSF districts, and (3) proficient students’ exposure to high quality teachers in non-DSSF districts.

In 2004-2005 on all measures of teacher quality except for experience at the elementary school level, students in the set of DSSF districts got significantly less exposure to high quality teachers than did students in other NC districts. There was also substantial variation among DSSF districts on many of these teacher quality exposure rates. On some variables at each level, a few DSSF districts showed average overall rates of exposure to high quality teachers that were near or significantly above the rates in other districts across the state. However, the overall pattern of lower teacher quality in DSSF districts compared to the rest of the state is clear.

Further, on nearly every measure there were substantial gaps between the exposure to high quality teachers received between students previously testing “not- proficient” on the EOGs and EOCs, also called “academically disadvantaged” throughout this report, and students who tested “proficient” in the previous year, between students from low-income families and their more advantaged counterparts, and by historically disadvantaged minority groups and the exposure received by White students. For example, academically disadvantaged students in DSSF districts received less exposure to high quality teachers than did: (a) proficient students in DSSF districts, (b) academically disadvantaged students in non-DSSF districts, and (c) proficient students in non-DSSF districts. On some variables, the exposure-to-quality gaps between academically disadvantaged students in DSSF districts and proficient students in non-DSSF districts were very striking. To choose just one example, proficient middle school students in non-DSSF districts were taught by teachers with top quartile PRAXIS scores 30% of their time in school. For academically disadvantaged students in DSSF districts, the rate of exposure to teachers with top

quartile PRAXIS scores was only 19%. In other words, the average proficient middle school student in a non-DSSF district was taught reading and mathematics by high-scoring teachers for almost 50% more of his/her time than was the average academically disadvantaged student in a DSSF district.

It is important to make one final observation before turning to a more detailed examination of the data. Making the distribution of teacher quality more equitable – so that low-scoring, low-income, and minority students would have at least as much access to high quality teachers as do their more advantaged peers – would represent an important step, but it would not assure that all North Carolina children have an equal opportunity to receive a sound, basic education.

The following scenario illustrates the problem. Consider the case of a high school student who tested at or above the proficient level on the eighth grade EOG exams. On average in non-DSSF districts, in 2004-2005 that student was taught EOC subjects by teachers who were licensed to teach those particular subjects 70.2% of the time. Now consider the high school student in a DSSF district who tested not-proficient on his eighth grade EOG exams. In 2004-2005, that student was taught EOC subjects by teachers licensed to teach those particular subjects only 52.8% of the time. Most policy makers will be rightly concerned about this gap. However, is 70.2% exposure to subject-certified teachers an acceptable level? And, would it be acceptable to equalize exposure at a still lower rate – say, around 60%?

There appear to be three levels to the problem, all worthy of careful consideration by North Carolina education policy makers: 1) the overall level of teacher quality across the state, 2) the gap in teacher quality between disadvantaged districts and more advantaged districts, and 3) the gap in teacher quality between that available to disadvantaged students and more advantaged students across all districts. Disadvantaged students in disadvantaged districts struggle under three layers of resource deficiencies. Even more advantaged students in more advantaged districts received access to teachers who had the state-defined qualifications to teach the specific EOC subjects they taught only about 70% of the time.

In the remainder of this chapter, we present and discuss the distribution of teacher quality at the elementary, middle, and high school levels, including averages for all students in DSSF and non-DSSF districts as sets of districts, averages for all students in each DSSF district individually, and averages for subgroups of students in DSSF and non-DSSF districts.

The Distribution of Teacher Quality in Elementary Schools

As Table 3.2 demonstrates, at the elementary school level (grades three-five) on all but two measures of teacher quality we examined, in 2004-2005 there were clear differences between the rates of exposure to high quality teachers between DSSF and non-DSSF districts. Non-DSSF districts enjoyed a substantial advantage in exposure to teachers with bachelor's degrees from the "most competitive" and "highly competitive" colleges and universities, teachers with PRAXIS scores in the top quartile and above the mean, National Board certified teachers, and teachers fully certified to teach their EOC courses. There were modest differences in exposure to teachers with at least a Master's degree; teachers with a continuing license (indicating at least three years of successful teaching experience); and teachers with provisional, emergency, or temporary licenses. In terms of experience, by contrast, teacher quality in DSSF districts was about equal

to or even a little better than other NC districts. Thus, the experience indicators are the only two of the eleven indicators on which DSSF districts were not disadvantaged compared with the rest of the state's districts.

On each specific measure, one or more individual DSSF districts matched or bettered non-DSSF districts (Table 3.2). For example, on exposure to teachers with at least a Master's degree Hyde County, Montgomery County, Elizabeth City/Pasquotank, and Robeson County exceeded the average in non-DSSF districts. Halifax, Montgomery, Elizabeth City/Pasquotank and Thomasville bested the rest-of-state average on the percentage of teachers with bachelor's degrees from the "most competitive" and "highly competitive" colleges and universities. On PRAXIS scores in the top quartile, Hyde and Vance showed unusually well, as did Hyde, Montgomery, Elizabeth City/Pasquotank, and Warren County on exposure to teachers with better than average PRAXIS scores. Hertford, Hyde, Montgomery, Elizabeth City/Pasquotank, and Washington Counties outpaced the rest of the state on the percentage of teachers with a continuing license. Five DSSF districts reported no EOG-related exposure to teachers with Provisional, Emergency or Temporary licenses, and six reported none to lateral entry teachers in EOG subjects. On exposure to National Board Certified Teachers, the high rates in Lexington, Northampton, Elizabeth City/Pasquotank, and Warren stand out. On exposure to teachers certified to teach their EOC subjects, five districts posted better rates than the average of other NC districts, and on the experience measures, about half of the DSSF districts did about as well or better than non-DSSF districts.

**Table 3.2: Teacher Quality in DSSF and non-DSSF
NC Elementary Schools (2004-2005)**

	Education		Assessments		Licensing					Experience		Class Size
	% at least a Masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC	27.5%	9.1%	39.6%	68.7%	81.1%	2.1%	0.8%	8.1%	81.8%	7.9%	74.4%	21.95
All 16 DSSF Districts	23.2%	8.0%	26.0%	57.2%	75.6%	4.7%	2.3%	2.8%	76.6%	8.0%	76.1%	21.42
Edgecombe	15.7%	8.4%	24.7%	56.6%	70.4%	6.2%	*	0.0%	75.7%	15.7%	67.9%	21.73
Eliz City/ Pasquotank	42.5%	6.5%	23.5%	98.5%	91.5%	0.0%	0.0%	8.5%	90.0%	0.0%	92.0%	16.14
Franklin	10.8%	8.7%	32.1%	67.0%	72.1%	*	*	0.0%	92.0%	12.4%	67.3%	19.62
Halifax	6.6%	9.7%	37.9%	64.1%	77.9%	0.0%	4.8%	5.2%	47.5%	10.9%	73.5%	20.10
Hertford	16.0%	9.1%	37.5%	55.8%	82.5%	11.2%	0.0%	0.0%	78.7%	0.0%	84.2%	22.96
Hoke	21.5%	0.0%	29.2%	47.2%	72.2%	2.8%	0.0%	0.0%	74.4%	14.6%	69.8%	22.30
Hyde	32.4%	0.0%	100.0%	100.0%	91.2%	0.0%	0.0%	0.0%	62.6%	0.0%	100.0%	14.86
Lexington City	9.5%	9.0%	24.3%	62.5%	73.4%	0.0%	0.0%	15.8%	82.5%	*	54.5%	19.35
Montgomery	47.6%	13.7%	24.2%	72.8%	83.8%	2.4%	0.0%	6.5%	81.4%	2.4%	83.9%	22.88
Northhampton	23.3%	3.3%	*	37.1%	79.2%	6.4%	2.9%	10.9%	86.7%	2.9%	80.7%	18.69
Robeson	30.1%	7.0%	20.0%	46.0%	81.8%	4.5%	1.6%	2.1%	79.2%	4.6%	84.7%	23.23
Thomasville City	6.6%	20.4%	21.7%	56.5%	37.2%	10.3%	*	0.0%	77.3%	15.4%	38.6%	20.34
Vance	18.1%	6.4%	42.0%	56.7%	56.5%	3.1%	17.5%	3.9%	55.0%	14.4%	61.1%	17.07
Warren	23.9%	0.0%	*	51.4%	75.6%	14.8%	9.7%	10.8%	72.7%	14.8%	75.6%	19.11
Washington	9.6%	6.6%	17.3%	67.7%	83.8%	0.0%	0.0%	0.0%	91.9%	16.2%	68.9%	21.35
Weldon City	12.7%	46.3%	*	*	26.2%	62.7%	11.1%	0.0%	24.6%	0.0%	100.0%	25.58

On all measures except experience, academically disadvantaged elementary students in DSSF districts experienced lower rates of exposure to high quality teachers than did proficient students in these districts (Table 3.3). Of particular interest, only 21% of academically disadvantaged students in DSSF districts were exposed to a teacher who scored in the top quartile on a PRAXIS test, compared to 38% of academically disadvantaged students across the rest of the state, and 27% of non-disadvantaged students within the DSSF districts. Moreover, over 6% of academically disadvantaged students in DSSF districts were exposed to a teacher with a provisional, emergency, or temporary license. This compares to only 3% of academically disadvantaged students across the rest of the state and 4% of non-disadvantaged students in DSSF districts.

**Table 3.3: Teacher Quality in DSSF and non-DSSF by Academically Disadvantage Status
NC Elementary Schools (2004-2005)**

		Education		Assessments		Licensing				Experience		Class Size	
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		27.5%	9.1%	39.6%	68.7%	81.1%	2.1%	0.8%	8.1%	81.8%	7.9%	74.4%	21.95
All 16 DSSF Districts		23.2%	8.0%	26.0%	57.2%	75.6%	4.7%	2.3%	2.8%	76.6%	8.0%	76.1%	21.42
Level 1 & 2	Rest of NC	27.1%	8.7%	38.0%	65.2%	78.2%	2.8%	1.2%	6.6%	79.5%	9.3%	72.1%	20.62
	16 DSSF	21.5%	7.6%	21.3%	52.5%	74.1%	6.3%	2.7%	2.0%	74.4%	7.1%	75.8%	20.92
Level 3 & 4	Rest of NC	27.3%	9.4%	39.0%	69.0%	81.7%	1.9%	0.7%	8.4%	83.1%	7.6%	74.8%	22.40
	16 DSSF	23.5%	7.8%	27.4%	58.2%	76.1%	4.2%	2.1%	3.3%	79.1%	8.3%	76.3%	21.76

Similar patterns were shown in the exposure rates for students whose families received free or reduced price lunch (“economically disadvantaged”) and those who were not eligible. On only two measures of teacher quality, the percentage of teachers who received their bachelor’s degree at a “highly competitive” institution and the percentage of first year teachers, did FRL students in the DSSF districts receive an advantage over students across the rest of North Carolina or non-economically disadvantaged students from DSSF districts (Table 3.4).

**Table 3.4: Teacher Quality in DSSF and Non-DSSF Districts by Economically Disadvantaged Status
NC Elementary Schools (2004-2005)**

		Education		Assessments		Licensing				Experience		Class Size	
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		27.5%	9.1%	39.6%	68.7%	81.1%	2.1%	0.8%	8.1%	81.8%	7.9%	74.4%	21.95
All 16 DSSF Districts		23.2%	8.0%	26.0%	57.2%	75.6%	4.7%	2.3%	2.8%	76.6%	8.0%	76.1%	21.42
Free/ Red. lunch	Rest of NC	26.5%	8.8%	37.7%	65.9%	79.0%	2.5%	1.1%	6.9%	81.2%	8.9%	72.3%	21.15
	16 DSSF	22.0%	7.7%	23.6%	54.5%	74.5%	5.5%	2.5%	2.4%	75.6%	7.8%	75.5%	21.15
Not Free/ Red. Lunch	Rest of NC	28.3%	9.3%	41.6%	71.6%	83.2%	1.8%	0.5%	9.2%	83.3%	6.9%	76.2%	22.69
	16 DSSF	26.0%	7.5%	32.7%	62.6%	77.9%	2.8%	1.8%	3.7%	81.6%	8.6%	77.8%	22.13

The exposure rate patterns for African-American and Hispanic students compared to White students showed trends similar to those for academically and economically disadvantaged and non-proficient students (Table 3.5).

Hispanic students in DSSF districts were less than half as likely to be exposed to teachers who scored in the top quartile of their PRAXIS II exams (18.3%) than White students in non-DSSF districts (42.2%). In this regard, it is difficult to imagine that minority elementary students in DSSF districts are getting an opportunity for a sound basic education equal to that available to White students in non-DSSF districts.

**Table 3.5: Teacher Quality in DSSF and non-DSSF by Race/ Ethnicity
NC Elementary Schools (2004-2005)**

		Education		Assessments		Licensing					Experience		Class Size
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		27.5%	9.1%	39.6%	68.7%	81.1%	2.1%	0.8%	8.1%	81.8%	7.9%	74.4%	21.95
All 16 DSSF Districts		23.2%	8.0%	26.0%	57.2%	75.6%	4.7%	2.3%	2.8%	76.6%	8.0%	76.1%	21.42
White	Rest of NC	28.0%	9.5%	42.2%	72.0%	83.9%	1.6%	0.5%	8.9%	83.5%	6.6%	76.7%	22.33
	16 DSSF	25.3%	7.9%	32.2%	63.2%	76.0%	2.8%	1.5%	4.0%	81.4%	8.3%	74.7%	21.93
Black	Rest of NC	26.4%	8.8%	35.6%	63.3%	76.5%	3.2%	1.5%	6.8%	79.5%	9.9%	70.9%	21.20
	16 DSSF	18.8%	8.4%	24.3%	53.6%	72.8%	6.1%	3.2%	2.2%	72.2%	8.5%	74.7%	20.52
Hispanic	Rest of NC	26.8%	7.9%	37.2%	67.8%	77.7%	1.7%	0.8%	6.6%	83.6%	9.5%	70.2%	21.64
	16 DSSF	20.4%	6.8%	18.3%	53.9%	72.6%	4.0%	2.4%	3.6%	80.2%	10.1%	68.8%	21.02
Other	Rest of NC	27.9%	8.3%	36.9%	64.6%	79.3%	2.2%	0.7%	9.1%	84.6%	8.8%	73.2%	22.29
	16 DSSF	30.9%	5.6%	19.5%	51.4%	82.4%	4.9%	1.6%	2.0%	82.4%	5.6%	85.1%	23.06

The Distribution of Teacher Quality in Middle Schools

Overall, rates of exposure to high quality teachers were modestly but noticeably lower in middle schools than in elementary schools. The differences between elementary school and middle school student exposure on two specific indicators of teacher quality are particularly noteworthy. First, the percentage of teachers who were fully certified to teach the subject or grade dropped from 77% in elementary schools to only 60% in middle schools in the DSSF pilot districts. The percentage of first year teachers rise by over 50%, from 8% in elementary schools to over 12% in middle schools in the DSSF districts (Table 3.6).

**Table 3.6: Teacher Quality in DSSF and Non-DSSF Districts
NC Middle Schools (2004-2005)**

	Education		Assessments		Licensing					Experience		Class Size
	% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC	24.4%	9.5%	28.8%	58.4%	76.7%	6.1%	3.9%	7.0%	67.8%	8.5%	71.8%	23.23
All 16 DSSF Districts	16.3%	10.1%	20.6%	47.7%	67.1%	13.3%	7.4%	2.9%	60.1%	12.4%	64.5%	23.08
Edgecombe	9.5%	13.6%	49.4%	49.4%	74.4%	21.7%	*	8.7%	51.9%	17.5%	64.2%	24.25
Franklin	15.5%	11.4%	25.4%	57.3%	55.4%	17.9%	18.2%	2.4%	59.7%	22.1%	52.8%	22.53
Halifax	7.7%	7.8%	*	22.1%	71.1%	9.8%	13.1%	2.0%	55.1%	8.1%	58.5%	19.11
Hertford	6.3%	8.5%	*	25.2%	52.9%	15.7%	18.4%	0.0%	45.2%	17.0%	61.8%	20.90
Hoke	11.5%	15.3%	8.8%	47.5%	56.4%	11.3%	7.5%	0.0%	59.0%	14.7%	41.9%	25.04
Hyde	*	*	*	*	48.3%	39.2%	0.0%	0.0%	37.9%	13.3%	67.1%	13.99
Lexington City	9.7%	17.3%	*	47.6%	55.1%	9.1%	6.1%	0.0%	58.7%	5.7%	43.9%	19.58
Montgomery	18.9%	10.2%	41.7%	76.7%	83.2%	4.3%	1.3%	7.1%	71.1%	5.4%	81.3%	25.59
Northhampton	11.2%	10.3%	*	*	81.0%	11.1%	8.1%	0.0%	51.6%	9.6%	72.0%	21.77
Pasquotank	26.2%	9.5%	18.4%	47.7%	68.5%	13.7%	1.7%	*	70.9%	7.8%	63.2%	21.63
Robeson	21.7%	8.0%	17.8%	40.2%	76.8%	7.8%	3.8%	3.2%	70.5%	8.0%	74.6%	23.55
Thomasville City	17.3%	10.4%	33.7%	52.3%	75.2%	5.3%	9.9%	7.7%	60.4%	4.5%	84.9%	22.46
Vance	11.9%	9.0%	6.4%	43.2%	36.8%	29.4%	18.6%	1.5%	35.3%	25.0%	47.2%	23.00
Warren	24.2%	7.1%	56.0%	56.0%	51.3%	31.0%	10.4%	0.0%	42.6%	23.7%	59.5%	20.89
Washington	16.0%	9.7%	15.8%	42.1%	80.2%	0.0%	0.0%	0.0%	82.3%	11.8%	74.6%	21.80
Weldon City	7.3%	10.4%	*	*	32.7%	32.3%	9.1%	0.0%	36.0%	11.8%	53.6%	31.17

While the levels of exposure to high quality teachers dropped from elementary to middle school, the patterns of difference between DSSF districts and non-DSSF districts, socioeconomic groups, ethnic groups, and EOG proficiency groups were generally similar. As was true at the elementary level, on some variables, some DSSF districts posted rates of exposure to high quality teachers that matched or exceeded the rates in non-DSSF districts. However, at the middle school level in **no case** did academically disadvantaged (Table 3.7) or economically disadvantaged students (Table 3.8) experience rates of exposure to high quality teachers that exceeded the rates of exposure to high quality teachers experienced by their more advantaged peers.

**Table 3.7: Teacher Quality in DSSF and non-DSSF by Academic Disadvantage
NC Middle Schools (2004-2005)**

		Education		Assessments		Licensing					Experience		Class Size
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		24.4%	9.5%	28.8%	58.4%	76.7%	6.1%	3.9%	7.0%	67.8%	8.5%	71.8%	23.23
All 16 DSSF Districts		16.3%	10.1%	20.6%	47.7%	67.1%	13.3%	7.4%	2.9%	60.1%	12.4%	64.5%	23.08
Level 1 & 2	Rest of NC	23.0%	9.0%	27.6%	54.9%	70.8%	8.1%	6.1%	4.9%	58.8%	10.5%	66.4%	20.54
	16 DSSF	14.2%	8.6%	19.0%	41.7%	59.6%	16.5%	10.1%	2.0%	53.6%	14.9%	61.0%	21.53
Level 3 & 4	Rest of NC	24.2%	9.2%	29.5%	58.5%	77.8%	5.4%	3.7%	7.1%	72.1%	8.3%	72.2%	24.03
	16 DSSF	15.1%	9.3%	24.2%	51.1%	65.4%	12.7%	8.0%	3.4%	63.8%	12.3%	63.9%	23.72

**Table 3.8: Teacher Quality in DSSF and non-DSSF by Economic Disadvantage
NC Middle Schools (2004-2005)**

		Education		Assessments		Licensing					Experience		Class Size
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		24.4%	9.5%	28.8%	58.4%	76.7%	6.1%	3.9%	7.0%	67.8%	8.5%	71.8%	23.23
All 16 DSSF Districts		16.3%	10.1%	20.6%	47.7%	67.1%	13.3%	7.4%	2.9%	60.1%	12.4%	64.5%	23.08
Free/ Red. lunch	Rest of NC	22.8%	9.5%	26.8%	55.7%	73.7%	7.3%	5.0%	5.5%	64.2%	9.4%	69.3%	22.16
	16 DSSF	16.2%	10.0%	18.4%	43.0%	65.3%	14.2%	7.9%	2.3%	57.9%	12.7%	63.8%	22.52
Not Free/ Red. Lunch	Rest of NC	25.8%	9.6%	30.6%	60.6%	79.2%	5.1%	3.1%	8.3%	71.0%	7.8%	74.0%	24.14
	16 DSSF	16.6%	10.1%	24.7%	56.3%	70.7%	11.4%	6.2%	4.2%	64.7%	12.0%	65.9%	24.23

Among minority students, for two indicators, Hispanic middle school students in DSSF districts were more likely to be exposed to higher quality teachers than their White counterparts in DSSF districts -- teachers graduating from “highly competitive” institutions and exposure to NBCTs (Table 3.9). On only one indicator of teacher quality, teachers graduating from “highly competitive” institutions were African-American students (10.4%) in middle school more likely to be exposed to higher quality teachers than White students (10.0%). On all other indicators of quality, African-American middle school students were less likely to be exposed to high quality teachers than White students.

**Table 3.9: Teacher Quality in DSSF and Non-DSSF by Race/ Ethnicity
NC Middle Schools (2004-2005)**

		Education		Assessments		Licensing					Experience		Class Size
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		24.4%	9.5%	28.8%	58.4%	76.7%	6.1%	3.9%	7.0%	67.8%	8.5%	71.8%	23.23
All 16 DSSF Districts		16.3%	10.1%	20.6%	47.7%	67.1%	13.3%	7.4%	2.9%	60.1%	12.4%	64.5%	23.08
White	Rest of NC	25.5%	9.6%	31.3%	62.4%	79.8%	5.1%	2.9%	8.3%	70.1%	7.7%	74.6%	23.77
	16 DSSF	16.8%	10.0%	28.0%	58.4%	70.1%	11.9%	6.6%	4.1%	63.6%	12.0%	65.5%	24.01
Black	Rest of NC	22.2%	9.5%	24.2%	51.1%	71.2%	7.9%	5.9%	4.6%	63.6%	10.0%	66.9%	22.18
	16 DSSF	14.7%	10.4%	16.6%	41.8%	62.2%	16.4%	8.9%	1.8%	54.7%	14.3%	60.7%	22.35
Hispanic	Rest of NC	23.7%	9.1%	28.4%	56.4%	73.7%	7.0%	5.2%	6.0%	66.6%	9.7%	68.9%	22.96
	16 DSSF	15.0%	11.3%	22.2%	55.6%	65.6%	12.0%	6.8%	4.8%	62.7%	12.5%	62.9%	23.44
Other	Rest of NC	25.8%	10.2%	29.5%	57.6%	75.9%	5.8%	4.5%	7.9%	70.2%	9.0%	70.7%	23.58
	16 DSSF	21.3%	8.6%	14.1%	36.3%	77.1%	6.1%	3.9%	3.5%	71.4%	6.9%	76.4%	23.43

The Distribution of Teacher Quality in High Schools

High school students in non-DSSF districts consistently received more exposure to high quality teachers than students in DSSF districts. As was true at the elementary and middle school levels, on some variables, some individual DSSF districts posted rates of exposure to high quality teachers that matched or exceeded the rates in non-DSSF districts (Table 3.9).

**Table 3.10: Teacher Quality in DSSF and non-DSSF Districts
NC High Schools (2004-2005)**

	Education		Assessments		Licensing					Experience		Class Size
	% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC	27.6%	10.1%	38.5%	70.7%	77.5%	6.2%	2.8%	9.2%	65.9%	8.6%	74.6%	21.96
All 16 DSSF Districts	21.9%	8.9%	28.6%	59.1%	67.8%	13.9%	5.2%	4.3%	58.5%	12.7%	67.2%	20.76
Edgecombe	34.5%	11.9%	44.1%	68.4%	65.5%	5.4%	4.2%	7.7%	67.0%	13.9%	57.6%	20.66
Franklin	21.3%	9.8%	29.3%	48.4%	62.4%	18.2%	10.9%	4.9%	55.8%	14.2%	66.8%	21.86
Halifax	9.9%	10.6%	18.6%	40.1%	58.8%	30.9%	6.7%	0.0%	31.8%	39.6%	53.9%	19.83
Hertford	2.0%	8.1%	39.4%	73.6%	72.9%	9.6%	*	0.0%	73.5%	0.0%	72.9%	18.19
Hoke	12.1%	6.2%	*	8.1%	57.3%	31.9%	1.7%	5.2%	40.3%	18.4%	69.3%	24.31
Hyde	29.1%	0.0%	6.6%	100.0%	98.0%	0.0%	0.0%	0.0%	60.8%	0.0%	68.9%	11.55
Lexington City	8.9%	0.0%	44.2%	100.0%	79.8%	20.2%	0.0%	0.0%	70.7%	3.2%	78.6%	18.30
Montgomery	25.1%	10.0%	47.0%	67.3%	72.4%	14.4%	4.2%	7.3%	68.9%	11.9%	72.9%	21.98
Northhampton	6.1%	14.5%	20.5%	58.5%	47.1%	23.3%	18.3%	0.0%	37.3%	18.2%	46.9%	20.65
Pasquotank	14.6%	9.5%	29.0%	68.6%	74.4%	3.6%	0.0%	10.9%	65.0%	12.6%	61.9%	22.51
Robeson	29.7%	9.9%	19.7%	56.3%	78.8%	8.8%	1.5%	3.4%	65.9%	7.5%	77.6%	19.62
Thomasville City	16.9%	4.5%	24.4%	55.4%	80.0%	2.3%	3.4%	10.4%	71.5%	16.2%	67.8%	19.77
Vance	13.3%	6.4%	40.9%	71.0%	49.8%	15.4%	11.4%	0.0%	38.3%	16.1%	46.2%	19.77
Warren	23.9%	1.6%	3.4%	68.7%	47.4%	22.1%	11.1%	0.0%	56.4%	14.7%	63.0%	21.27
Washington	35.1%	5.5%	*	66.5%	84.2%	0.0%	6.2%	0.0%	64.1%	3.2%	84.2%	17.13
Weldon City	25.4%	12.6%	*	*	59.6%	12.6%	12.6%	0.0%	51.1%	0.0%	70.7%	17.30

At the high school level as at the middle school level, there was **not a single indicator** in the DSSF districts on which academically disadvantaged students experienced rates of exposure to high quality teachers that exceeded the rates of exposure to high quality teachers experienced by their peers who achieved proficiency in both reading and mathematics in the eighth grade (Table 3.11).

Of special concern is the percentage of fully-certified, in-field teachers. As stated earlier, the student exposure percentages given in this report include only core classes. Therefore, academically disadvantaged students in DSSF districts are exposed to a certified, in-field teacher in only 53% of their classes. This compares to a 60% exposure rate for academically disadvantaged students across the rest of the state and 61% of non-academically disadvantaged students within the DSSF districts.

Table 3.11: Teacher Quality in DSSF and Non-DSSF Districts by Academically Disadvantaged NC High Schools (2004-2005)

		Education		Assessments		Licensing					Experience		Class Size
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		27.6%	10.1%	38.5%	70.7%	77.5%	6.2%	2.8%	9.2%	65.9%	8.6%	74.6%	21.96
All 16 DSSF Districts		21.9%	8.9%	28.6%	59.1%	67.8%	13.9%	5.2%	4.3%	58.5%	12.7%	67.2%	20.76
Level 1 & 2	Rest of NC	24.9%	9.5%	34.3%	65.3%	70.8%	10.0%	4.5%	5.7%	60.0%	11.0%	75.7%	19.78
	16 DSSF	19.8%	7.6%	25.5%	56.6%	64.3%	15.8%	6.1%	2.5%	52.8%	14.8%	67.0%	19.61
Level 3 & 4	Rest of NC	27.6%	10.2%	39.0%	71.4%	78.7%	5.8%	2.6%	9.9%	70.2%	8.3%	75.7%	22.28
	16 DSSF	22.9%	9.3%	29.5%	59.7%	69.6%	12.9%	4.8%	4.9%	61.0%	11.8%	67.0%	21.22

There showed an interesting development among economically disadvantaged students. On two measures of teacher quality – the percentage of teachers with a Master’s degree and the percentage of teachers scoring above the mean on a PRAXIS exam – non-economically disadvantaged students in DSSF districts fared the worst (Table 3.12). However, the problem with the percentage of certified, in-field teaching still remained for economically disadvantaged students in DSSF districts, with those students exposed only 57% of the time to certified in-field teachers. This compares to 64% for economically disadvantaged students across the rest of the state and 60% of non-economically disadvantaged students in DSSF districts.

Table 3.12: Teacher Quality in DSSF and Non-DSSF Districts by Economically Disadvantaged NC High Schools (2004-2005)

		Education		Assessments		Licensing					Experience		Class Size
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		27.6%	10.1%	38.5%	70.7%	77.5%	6.2%	2.8%	9.2%	65.9%	8.6%	74.6%	21.96
All 16 DSSF Districts		21.9%	8.9%	28.6%	59.1%	67.8%	13.9%	5.2%	4.3%	58.5%	12.7%	67.2%	20.76
Free/ Red. lunch	Rest of NC	25.4%	9.8%	34.7%	66.8%	73.5%	8.6%	3.6%	7.1%	64.4%	10.5%	71.7%	20.84
	16 DSSF	22.0%	8.6%	26.1%	59.2%	67.8%	14.5%	5.2%	3.5%	56.7%	12.6%	67.5%	20.28
Not Free/ Red. Lunch	Rest of NC	27.9%	10.2%	39.6%	71.8%	78.7%	5.6%	2.6%	10.0%	70.0%	8.1%	75.7%	22.26
	16 DSSF	21.9%	9.2%	31.0%	58.9%	67.9%	13.3%	5.2%	5.1%	60.3%	12.8%	67.0%	21.24

In terms of minority students, on three indicators of teacher quality, Hispanic students were as likely as White students to be exposed to high quality teachers in their EOC courses. However, African-American students were disadvantaged on **every** measure of teacher quality in their EOC courses (Table 3.13).

**Table 3.12: Teacher Quality in DSSF and non-DSSF Districts by Race/ Ethnicity
NC High Schools (2004-2005)**

		Education		Assessments		Licensing					Experience		Class Size
		% at least a masters degree	% Most and Highly Competitive Bachelor's Degree	% scoring in top Quartile on Any Praxis Exam	% scoring above mean on Any Praxis Exam	% Continuing License	% Provisional/ Emg/ Temp. License	% Lateral Entry	% National Board Certified	% Certified In-field teaching	% First year teachers	% More than 3 years teaching	Average Class Size
Rest of NC		27.6%	10.1%	38.5%	70.7%	77.5%	6.2%	2.8%	9.2%	65.9%	8.6%	74.6%	21.96
All 16 DSSF Districts		21.9%	8.9%	28.6%	59.1%	67.8%	13.9%	5.2%	4.3%	58.5%	12.7%	67.2%	20.76
White	Rest of NC	27.9%	10.4%	40.0%	73.3%	79.9%	5.1%	2.5%	10.4%	70.7%	7.5%	76.9%	22.15
	16 DSSF	22.1%	10.2%	33.6%	61.4%	70.6%	11.3%	4.9%	6.1%	61.9%	11.1%	69.3%	21.53
Black	Rest of NC	25.5%	9.6%	34.0%	64.3%	71.8%	9.5%	3.8%	6.7%	63.8%	11.3%	70.1%	21.14
	16 DSSF	18.6%	8.2%	25.0%	57.9%	63.4%	16.3%	6.5%	3.2%	53.8%	14.9%	62.5%	20.38
Hispanic	Rest of NC	26.3%	9.0%	36.8%	67.8%	72.4%	8.1%	3.8%	7.0%	65.4%	11.2%	70.0%	21.60
	16 DSSF	21.6%	8.2%	36.2%	63.1%	68.8%	17.2%	5.7%	4.5%	57.6%	11.5%	69.3%	21.20
Other	Rest of NC	29.1%	9.6%	40.1%	71.6%	76.4%	5.8%	2.9%	10.6%	68.7%	9.5%	73.5%	22.23
	16 DSSF	34.4%	8.0%	26.0%	55.1%	76.9%	11.1%	1.3%	3.1%	67.3%	9.2%	78.8%	19.82

Class Size in DSSF and Other Districts

The tables displayed above show that DSSF districts enjoyed a small advantage over non-DSSF districts in class size at all three levels – elementary, middle, and high school. The largest advantage was at the high school level, where on average EOC classes were about one student larger in non-DSSF districts. The small average class size in DSSF districts reflects some very small classes in one to three districts at each level, including Hyde County across all levels. It is possible that DSSF districts are – in effect, if not deliberately – compensating for lower teacher quality by reducing class size. However, Hyde County, the district with by far the smallest classes, scored above the mean for DSSF districts on many teacher quality indicators. Recent literature does show that smaller class sizes can improve student performance on standardized tests in grades K-3. However, the improvements that were observed in student performance in these studies resulted from larger differences in class size than were observed in the DSSF districts in 2004-2005.

Chapter Summary

In this chapter we have shown that:

1. Teacher quality is lower in the DSSF districts than other districts in the state;
2. Academically disadvantaged students in the DSSF districts receive less exposure to higher quality teachers than other students in these districts;
3. Academically disadvantaged students in the DSSF districts were less likely to be exposed to higher quality teachers than academically disadvantaged students in the rest of North Carolina.

In addition, the situation appears to be much the same for economically disadvantaged students and students of color. Moreover, we have shown that the state as a whole suffers from much lower than desirable levels of exposure to higher quality teachers.

While we have not yet established the link between these teacher characteristics and higher levels of student performance in North Carolina, other research supports these relationships, some of which has been performed using data from North Carolina. It is important to note that the measures presented in this chapter preceded the availability of DSSF funds that the 16 pilot districts were to have used to improve teacher quality. To be sure, as we show in Chapter 4, the administrators and teachers in DSSF pilot districts indicate that their greatest problem is recruiting and retaining high quality teachers in their schools. In Chapter 4, we give a detailed account of the expenditure of DSSF funds and recount the prevailing views of educators in the DSSF districts about the barriers to achieving higher levels of student performance and the implementation of the program in the pilot districts.

Chapter 4: Implementation of DSSF

As the 2004-2005 school year began, the 16 DSSF pilot districts were notified that they would receive additional funds to improve the education of academically disadvantaged students in their schools. The districts organized planning teams, began to assess their educational needs, and developed plans and budgets. In this chapter of the report we describe:

- 1) the educational problems that the districts sought to remedy;
- 2) the implementation of their plans, including interactions with the LEAAP teams; and
- 3) the way the districts actually expended their funds in 2004-2005.

The information included in this chapter was gathered through extensive field work in each of the 16 pilot districts, including interviews with the superintendents, the principals of an elementary, middle school, and high school in each district, and focus groups with several teachers in each of these schools as well as a detailed analysis of the financial records of the districts. Details on the methods are available from the report authors.

The Most Important Problems Facing the Pilot Districts: Views of Teachers and Administrators

In each of the pilot districts, we gathered information from teachers, principals, and district administrators concerning the most important problems facing the district. District personnel were asked to identify the most important problems faced by their districts. Problems of two distinct types were discussed: 1) Poor student outcomes, usually discussed as low test scores and high drop-out rates, and 2) High teacher and leadership turnover, which were identified as the main contributors to poor student outcomes. Though, other issues were mentioned in the interviews, these dominated the discussions. In this section of the chapter, we will explain how the districts' teachers and administrators viewed the causes and consequences of these problems, provide some evidence about the nature of the problems from research literature, and thus set the stage for explaining the choices that were made in the planning and implementation of the DSSF funds.

High Teacher Turnover

Teacher turnover is one of the largest problems facing the 16 DSSF pilot districts. According to DPI, the turnover rates during the 2004-2005 school year in these districts ranged from 6.35% to 25.56%¹. In some individual schools the rate was as high as 47.2%². Some of these schools face teacher turnover during the school year in addition to these end-of-the-year turnover rates.

One superintendent said that although his district's teacher turnover rates consistently ranked among the highest in the state, he had not realized how much of an issue it was for the district until DSSF focused his attention on this concern. He has come to see the ongoing loss of personnel, which brings about the need to constantly recruit and train new personnel, as a clear barrier to improving instructional quality.

¹ <http://www.ncpublicschools.org/humanrsrcs/downloads/200405teacherturnoverreport.pdf>

² This is based on 2005 teacher pay data.

District personnel, principals, and teachers in these districts identified several causes for the high turnover rates. These included competition among districts in the state and with neighboring states for a limited number of highly qualified teachers. Nearly all NC districts supplement the base state salary schedule for teachers using local funds. However, most of the DSSF pilot districts have been unable to provide salary supplements or other salary incentives that are competitive with nearby districts. Some teachers mentioned having to maintain second jobs in order to break-even financially. The teachers recruited into North Carolina from other states often contribute to the high turnover rates as well. Teachers often come to North Carolina for two to five years to gain teaching experience and possibly a subsidized Master's degree before returning to their home state to continue their career at a much higher pay scale.

Additional causes cited for turnover included lack of discipline in the schools; poor leadership; poor student performance; lack of adequate materials and supplies; a high number of Lateral Entry Teachers (teachers who enter teaching from another field) who fail the PRAXIS tests and are thus ineligible to continue; inadequate support and mentoring for new teachers; the promotion of teachers to administrative positions; and a high number of Teach for America teachers and Visiting International Faculty, programs that place teachers for two or three year commitments.

Personnel in many districts also identified the lack of amenities and cultural experiences available in rural areas of the state as a major cause of turnover. In focus groups across these districts, teachers stated that having ties to the community was the most important factor in attracting and retaining teachers. Additionally, personnel in four districts specifically cited lack of appropriate housing as contributing to teacher turnover. In one district, Teach for America teachers spent their entire two year commitment living in hotels. In another district, new teachers were spending most of their first year in the district living in a motel.

High rates of turnover led to other problems for these districts, including the need for constant recruitment and associated costs of orienting and integrating new teachers to the school. As a result of the turnover and the difficulty of replacing teachers who leave, many teachers are teaching classes for which they are not properly prepared and licensed. For example, high school mathematics teachers are particularly hard to recruit, and many of the math teachers in these districts do not have degrees in math. In one district only two mathematics teachers in the entire district were certified as teachers of mathematics.

Turnover also led to a continuous stream of new, inexperienced teachers. This includes lateral entry teachers (LETs) and Initially Licensed Teachers (ILTs), teachers who are in their first year of teaching. New teachers need intensive training and mentoring, which can be expensive. In addition, because of high turnover, the districts and schools have to provide the same professional development repeatedly. This is both expensive and detrimental to veteran teachers who cannot attend more advanced professional development because the budget for training is completely absorbed by training for new teachers.

Empirical research shows that high turnover adversely affects student performance. Teachers with three or fewer years of experience are less effective in improving student achievement than more experienced teachers (ECS, 2005; Rivkin, Hanushek, and Kain, 2005). Turnover creates a

cycle of new teachers, thus negatively impacting student achievement. Both less experienced and out-of-field-teachers are much more common in high-poverty and high-minority areas. In 2000 in North Carolina, 34% of core academic classes in high poverty schools were taught by out-of-field teachers; in low poverty schools only 13% were taught by out-of-field teachers (Jerald, 2002). The Education Commission of the States' review of empirical research on teacher licensing and certification found that there is "strong evidence that students taught by fully certified teachers achieve at higher levels than those with teachers who are certified but teaching out-of-field, or who hold emergency certification" (ECS, 2005: p.8).

High Turnover in Leadership

The second major problem cited, turnover of leadership at both the school and district level, is not addressed specifically within the Menu of Options presented to DSSF districts. Of the 16 superintendents interviewed in spring of 2006, at least five were either new within the last two years or have subsequently left. Of the 48 principals interviewed, 18 had been in their current positions for less than two years. The elementary schools had more leadership stability than either middle schools or high schools, with only three of the 16 interviewed having been in their position for two years or less. In one district, 57 of 60 employees in leadership positions will become eligible for retirement in the next two years.

The only identified causes of leadership turnover were stress and an attitude described by some as "who would want to live in this part of the state". As with teacher turnover, leaders not from the local area may find the locality lacking in cultural activities, housing, and other amenities that would encourage strong leaders to remain in the district.

Low-Standardized Test Scores

A third major problem cited in all of these districts, and borne out by assessment data, is the high number of students who are not proficient based on their standardized test scores. As previously stated, in North Carolina, there are four levels of student achievement. Levels 3 and 4 denote proficiency, and Levels 1 and 2 consist of students that have not demonstrated consistent proficiency in the subject matter on which they were tested³. Within the 16 DSSF districts, 102 of 176 (58%) schools did not make Adequate Yearly Progress (AYP) in 2004-2005 – just above the state average of 54%⁴. In order to make Adequate Yearly Progress (AYP), a certain percentage of students in each subgroup (for example, African-American, White, special education, free or reduced lunch) must score at or above the proficiency level (Level 3 or 4) in a school. By 2014, 100% proficiency is required under No Child Left Behind, with specified interval increases each year until then.

As administrators and teachers in DSSF districts explained, there are numerous causes for the high number of under-performing students. Low levels of parental education and involvement do not facilitate the extension or reinforcement in the home of what is learned at school. If parents are not reinforcing academics, children may require substantially more individualized attention and differentiated instruction to achieve grade level mastery in school. The high number of Exceptional Children (EC) and English as Second Language (LEP) students also exacerbate the problem. It is extremely difficult to teach mathematics, science, or social studies

³ DPI Website, <http://www.ncpublicschools.org/nclb/district/>

⁴ <http://abcs.ncpublicschools.org/abcs>

to a child who does not understand English, regardless of his or her intellectual ability. DSSF administrators and teachers also attributed their schools' low test scores to the large numbers of inexperienced teachers in their districts. Many simply lack the depth of knowledge and teaching skills to succeed with large numbers of students who begin each year well below grade level. DSSF teachers argue that good leadership is also crucial to test scores; strong, supportive administrators are able to create an environment conducive to student learning. Teacher after teacher mentioned strong leadership as an important factor in both their ability to teach well and in their career decisions. They emphasize that weak leadership affects discipline. Without consistent policies and consistent enforcement of these policies, much learning can be lost due to constant interruptions and incidents.

High Drop-out Rates

The final problem mentioned across all 16 districts was the high drop-out rate. Until the 2005-2006 school year, North Carolina calculated graduation rates for Adequate Yearly Progress based on the number of students who received their diploma within four years (commonly called the "On-Time Graduation Rate"). That is, of those students who did graduate, the percentage who received their diploma within four years. For 2004-2005, North Carolina reported a graduation rate of greater than 95%. This method has been critiqued as severely misleading as it does not account for drop-outs in any way. In response to this criticism, North Carolina changed to a cohort-based method which calculates the percentage of ninth grade students who graduate from high school four years later.⁵ Actual graduation statistics based on this new method are not yet available; however, estimates would suggest that North Carolina's graduation rate is between 65 and 70%, which would correspond to a cohort dropout rate of 30 to 35%.

The DPI also calculates an annual "Drop-out Rate" for the ABC standards. The DPI defines a dropout as "A student who was enrolled in school at some time during the previous school year, which is the reporting year; was not enrolled on the twentieth day of the current school year; has not graduated from high school or completed a state- or district-approved educational program; and does not meet any of the following reporting exclusions: 1) has transferred to another public school district, private school, home school, or state- or district-approved educational program; 2) is temporarily absent due to suspension or school-approved illness; or 3) has died" (Alliance for Excellent Education, 2003). Statewide, this annual rate for 2004-2005 was 4.7%, or approximately one out of every 20 high school students. One-third of drop outs were in the ninth grade⁶. Again, there are criticisms of this rate on the grounds that it down plays the severity of the problem.

The antecedents of dropout include below-grade level skills and frequent school absences. According to our interview respondents in DSSF districts, many students start missing school because of family or personal problems and do not know how to get back on track. Students who are suspended or expelled are often at risk for not returning to school at all. Students who fail a course have difficulty making it up and either do not want to attend summer school or must work in the summer. In high school especially, boys do not want to take classes with younger children and may find it easier to drop out than to attempt to catch up. Teachers noted that students get behind early and as they enter grades 7-12, the tests hold them more accountable.

⁵ DPI Website, <http://www.ncpublicschools.org/docs/nclb/abcayp/overview/abcaypchanges.pdf>

⁶ DPI Website, <http://www.ncpublicschools.org/newsroom/news/2005-06/20060301>

Often, they drop out. In at least two districts, teachers said that many high school students could not read: “If they can’t even read the test questions, how can they answer them?”

Implementation of Plans

These extensive and pervasive problems in the pilot districts served as the backdrop for formulating plans for the additional funds provided through DSSF and for implementing those plans in each of the 16 individual districts. Below, we describe the strategies that DSSF districts implemented, some of the problems they encountered during implementation, and what seemed to work well from their point of view. As noted previously, it was only recently that we received the data necessary to assess the impact of the DSSF program on teacher quality, principal quality, resource levels and utilization, and student outcomes. Thus, we cannot comment on the actual effectiveness of the strategies that districts employed. As an interim step, however, we briefly mention the prior research about the effects of these types of strategies on student performance. The research base on some strategies was too thin or mixed to warrant meaningful comment at this time.

Corresponding to the Menu of Options for the DSSF program we have separated the discussion of implementation into five categories: recruiting and retaining teachers, personnel, professional development, extending instructional time, and technology. Because the first three of these may appear to overlap, we divided them according to the following definitions. The section on recruiting and retaining teachers focuses on monetary or non-monetary incentives provided to teachers, including salary supplements and bonuses. The personnel category describes funds for additional personnel hired to for purposes such as reducing class-sizes, and expenditures for assimilating non-traditionally prepared teachers. Professional development refers to in-service training which is made generally available to teachers

Recruiting and Retaining Teachers

Guided by the Menu of Options, districts focused their spending within the category of recruitment and retention across four main strategies: 1) signing and retention bonuses, 2) performance-based bonuses, 3) salary supplements, and 4) non-monetary bonuses or designated monetary incentives.

In 2004-2005, all 16 districts used DSSF funds to implement various strategies designed to alleviate teacher turnover and to make their districts more attractive to new teachers. Fifteen of the 16 opted to implement various forms of salary incentives such as retention bonuses, flat salary supplements, or performance-based bonuses. On average, districts spent 65% of their total DSSF expenditures in the first year on recruiting and retaining teachers.

In 2005-2006, the Menu of Options included a cap on salary incentives of 35% of DSSF expenditures in each district. This caused a lot of problems for the districts that had invested heavily in these strategies. Additionally, mixed information and interpretation of this policy, mainly as a result of DPI documents or information disseminated by the district LEAAP teams, caused plans to be modified.

Signing Bonuses

The goal of a signing bonus is to entice teachers to a particular district or school. In this evaluation, a signing bonus is defined as a lump sum given to a teacher who is new to a particular district or school for agreeing to teach in that district or school. In the first year of DSSF, eight districts used a portion of their funds to implement a signing bonus for such “new” teachers. Bonuses ranged from \$1,000 to \$4,500. The results of this type of bonus were reported to be mixed.

In some of the districts, central administrators found the signing bonuses to be effective in recruiting new teachers, and principals and teachers concurred. In the focus groups that included new teachers (those with two or fewer years teaching experience), a few stated that these were very helpful for establishing themselves in a new location and useful for paying apartment deposits, utility activation fees, and other relocation expenses. A few new teachers said that the signing bonus was a deciding factor for them in choosing a school or district. However, most teachers, though they appreciated the additional bonus, stated that it was not a deciding factor in their choice of district. In other pilot districts where district-level personnel believed that the signing bonus was effective in attracting new teachers, virtually all teachers disagreed, stating that the bonus was too small to be significant.

The seemingly contradictory experiences of the districts are in line with the research on the effects of teacher salary and on teacher retention and student outcomes: there are findings of both a positive associations and of no relationship. Murnane and Olsen (1989) looked at elementary and high school teachers in Michigan during the 1970s and determined that for each increase of \$1000 in 1987 dollars of teacher salary, the teacher taught for an additional two to three years. Yet Hanushek and Rivkin (2003) conducted a meta-analysis on the relationship between teacher salary and student outcomes with different findings. They concluded that there is a slightly positive relationship between teacher salary and student outcomes, however in only 20% of the studies were the positive relationships statistically significant, while 73% were statistically insignificant. A third meta-analysis found no effect on student achievement when teacher salaries were increased (Greenwald, Hedges, and Lane, 1996).

In some districts, an unintended consequence of the bonus was resentment among veteran teachers. In focus groups, teachers complained that they did not receive any reward for teaching at the school and resented new teachers being “bribed” to teach there. One county provided an annual "loyalty bonus" to both certified and uncertified teachers based on the number of years of teaching in the county as a way to avoid the morale problems caused by signing bonuses for new teachers. The district discontinued this practice for 2006-2007, however, because ineffective teachers were rewarded along with effective teachers. Instead, county supplements for certified teachers were increased from 4% to 6% to satisfy veteran teachers, which did distinguish certified from uncertified teachers but did not necessarily reward the most effective teachers.

One implementation problem faced by all districts that offered signing bonuses involved the uncertainty of receiving DSSF funds the next year coupled with the June 30th spending deadline in the first year. Because most districts would prefer to give signing bonuses at the beginning of the school year, they could not use FY 2005 funds for this purpose but had to use the following year's funds. However, for recruitment in the spring and summer for teachers to begin the

following fall, it would make sense to be able to encumber funds for the signing bonuses that could be paid out in August or September. With the uncertainty of funds and regulations, which are usually published very close to the start of the new school year, principals and superintendents were recruiting teachers with the signing bonus early in the recruiting season, but then having to tell them that they *thought* the bonus would be available but could not guarantee it. In a few districts, superintendents or principals said that this problem led to the loss of potential new teachers.

Moreover, administrators in one district were told that they could not use a signing bonus in Year Two by their LEAAP team. They then discovered that other districts continued to offer the bonuses and felt this miscommunication very negatively affected their competitiveness with other districts in attracting teachers.

Retention Bonuses

For the purpose of this evaluation, a retention bonus is defined as a lump sum given to teachers currently teaching in the district who agree to continue teaching at the school or in the district for the following school year. During DSSF Years 1 and 2, 10 of the districts employed this strategy.

In the DSSF districts, the retention bonuses did not appear to have contributed to a reduction in turnover. However, these bonuses did often entice teachers to make definitive commitments to teach at the school at an earlier date than they otherwise might have. The retention bonus was an incentive for teachers to turn in signed contracts earlier in the spring so that they could receive their bonus earlier. This allowed principals and district personnel to better gauge the number of vacancies that needed to be filled for the following school year in the spring rather than the summer, allowing for more effective spring recruitment campaigns and more offers to be made at job fairs.

The deadline of June 30th to spend all DSSF money proved a challenge to the implementation of retention bonuses, as well. Because districts lost any money not spent by this date, many teachers were given their bonus before they actually came back the following fall. Some districts solved this problem by developing relationships with banks so that the bonus was a loan that had to be repaid if teachers did not return that August. Other districts instituted signed contracts requiring the retention bonus to be returned in full if a teacher decided not to come back.

Performance-Based Bonuses

Performance-based bonuses are defined in this report as a part of an accountability system developed to reward teachers and schools for student achievement, attendance, or graduation rates⁷. One study by Kelley, Heneman, and Malinowski (2002) examined two types of group performance-based bonuses, one in Kentucky and one in North Carolina (Charlotte-Mecklenburg). The programs each focused on the school rather than individual teachers meeting a specific goal related to student performance. The study found that teachers were motivated by participation in these programs and were more committed to these programs if they had received bonuses from the program in prior years. Little research exists on the effects of performance-based bonuses on individual teachers.

⁷ ECS, 2006, <http://www.ecs.org/ecsmain.asp?page=/html/issuesK12.asp>

The DSSF districts used performance-based bonuses in different ways, although most were monetary awards given to teachers based on reaching some pre-identified target, such as a certain passing rate for students on the EOC/EOG tests. Other bonuses went to whole schools based on the performance of the entire school, and there were also bonuses for principals and administrators for school improvement. In the first year of DSSF, six districts implemented what they referred to as performance bonuses for teachers. Only four districts offered performance bonuses for teachers in the second year.

Several issues arose with these bonuses. Individual districts did not have a consistent definition of “performance-based.” The DSSF Menu of Options specifically suggested performance-based bonuses as one strategy for recruiting and retaining teachers, yet no guidance or definitions accompanied this suggestion. Therefore, districts implemented a number of programs in the first year of DSSF that were defined within the district as “performance-based.” However, not all of these were tied to student outcomes.

Some strategies were geared towards student achievement, meaning that teachers whose students showed improvement, calculated in a variety of ways, on standardized test scores were eligible for bonuses. Other strategies were simply based on teacher behavior rather than student outcomes, with performance defined in terms of teacher attendance or teachers performing tasks outside of the standard school day, such as providing after-school tutoring or attending PTA meetings.

There were several unintended consequences of this strategy. Districts found that the implementation of performance bonuses was not simple and that it can be time-consuming and costly to create equitable formulas for distribution. In cases where EOG or EOC outcomes were used, teachers who fall outside of tested subjects were not eligible for the bonuses, and district officials worried that this may have increased strife and/or turnover in other areas. For example, an art or music teacher may not teach a class that has an EOG or EOC test. Therefore s/he may be less motivated and may even switch to a subject where s/he is eligible for some type of bonus, according to district personnel. One district considered establishing a performance-based bonus but because teachers in non-tested grades would not be eligible, decided to go with a salary supplement instead.

Moreover, it was not always easy to attribute student test score increases to a particular teacher if the student had during-the-day tutoring or if more than one teacher (team teaching) was involved in a specific subject. This was particularly difficult in middle schools. Some districts took a long time to devise a complicated formula for calculating teacher effectiveness and continue to tweak the formulas. Some districts chose to adapt or follow the ABC method of distributing performance-based bonuses. The district personnel reported two problems that arose with using this method: 1) in some cases, teachers who did not teach tested subjects/students were not eligible for bonuses and 2) the ABC method rewards teachers for the overall school performance and improvement. This means that effective teachers at poor performing schools did not get bonuses and ineffective teachers at high performing schools did get bonuses.

Salary Supplements

A third strategy was the use of salary supplements. In this report, a salary supplement is defined as additional salary given to school personnel on top of the state salary schedule, spread across paychecks. This differentiates supplements from bonuses which are given in a lump sum. For the 2003-2004 school year preceding DSSF, 15 of the 16 districts offered a salary supplement averaging \$1365. In the first year of the DSSF pilot, all 16 districts offered supplements, averaging \$1559. In 2005-2006, all 16 districts again offered supplements and the average rose to \$1628, a 16.15% increase from two years earlier, in part because of DSSF monies. Of the districts offering salary supplements across the state, the rate of increase from 2003-2004 to 2005-2006 was only 9.6%. The average for districts offering salary supplements across the state was \$2967.⁸ These changes indicate that these 16 educationally disadvantaged districts were able to offer more competitive salaries by offering salary supplements, but their supplements were slightly more than half those offered in the other parts of the state. Moreover, in the second year of DSSF, the Menu of Options limited salary supplements by limiting the percentage of DSSF funds that districts could use for salary supplements to 35%. As a result of these changes to the Menu of Options, in the second year of DSSF only three districts used DSSF funds to offer salary supplements.

As noted above in the section on signing bonuses, research on salary supplements is mixed. It is too early for the DSSF evaluation to gauge the impact of these salary supplements on student performance in the 16 pilot districts.

Non-Monetary or Designated Monetary Incentives

Non-monetary or designated monetary incentives comprise the final strategy that districts reported using to attract and retain teachers. This category includes a variety of incentives that were either specific goods, such as laptops, or funds designated for a specific purpose, including tuition and/or supplies. Generally districts focused these incentives on staffing “hard-to-staff” schools, promoting the completion of National Board Certification or Master’s degrees, and assisting new teachers.

Three districts offered teachers incentives to teach at “hard-to-staff” schools. Depending on the district, these schools were defined in terms of the percentage of students receiving free or reduced price lunches, schools with high levels of turnover, and schools to which the districts had difficulty attracting high quality teachers. In addition, one district offered incentives for teachers agreeing to fill “hard-to-staff” positions – positions in high needs areas such as math, science, and special education.

Compensation for teachers who were or became nationally board certified varied by district, with three districts offering some sort of incentive for National Board Certification. One district offered a one-time \$500 bonus and a laptop upon achieving National Board Certification, although the laptop was not mentioned by teachers in the focus group interviews. Two other districts reported that they paid certain small costs associated with becoming National Board Certified above and beyond those already covered by the State. Their hope was that this would lead to more qualified teachers in the district.

⁸ Calculated from data provided at <http://www.ncpublicschools.org/docs/fbs/finance/salary/supplements/2005-06supplements.pdf>

Seven districts offered partial reimbursement of tuition for teachers who were working towards obtaining a Master's degree. This was used both as a recruitment and a retention strategy. Indeed, some of the superintendents in the pilot districts strongly believe in the correlation between student achievement and a Master's degree. It is important to note that several studies have shown that there are mixed findings regarding whether advanced degrees improve student achievement (Goldhaber and Brewer, 1996; Goldhaber and Brewer, 1998).

Three issues arose with reimbursing teachers for the tuition or other costs associated with obtaining a Master's degree. First, several districts that had used similar incentives in the past found that teachers were not always completing their Master's, and believed that the district was therefore wasting money on tuition. To remedy this potential problem, some districts chose to only reimburse teachers who were at least half-way through their programs. Second, some districts only reimbursed teachers during the school year and would not reimburse for summer courses. This may have been a result of the June 30th deadline for spending the districts annual DSSF allotment. Teachers complained that most of their coursework is completed over the summers, making the reimbursement program unhelpful. Third, many teachers said that, while this was an incentive for some teachers to come to the district, it was only a temporary measure that "helps to make new teachers stay a little longer" and does not attract teachers for long-term commitments once the Master's programs are completed.

Finally, money was also designated for helping new teachers adjust to their new positions. New teachers in particular have a difficult time establishing their classrooms, since they are often struggling under a low income. In response to this, a few districts provided funds for new teachers to set up their classrooms with materials and supplies. However, while this was stated in the district level interviews, no new teachers in any focus groups reported having received this allotment. Two districts also subsidized utility activation charges for new teachers and helped with housing issues. One district provided a laptop for all new teachers with three or fewer years of experience in the district. While teachers said that they appreciated these efforts, none felt that these were programs that affected either recruitment or retention. Additionally, the laptop computers came with obscure software that was not compatible with more widely used programs such as Microsoft Office. As a result, teachers reported, the laptops were not useful.

Personnel

Guided by the Menu of Options, districts focused their spending within the category of personnel on four main purposes: 1) class size reduction, 2) support for lateral entry and initially licensed teachers, 3) hiring new lead teachers, and 4) support for Limited English Proficiency (LEP) students.

Class size reduction

In 2004-2005, many of the 16 districts used DSSF funds to reduce class size. District personnel believed that this would lead to more small-group time, more individualized instruction, and more creativity in the classroom. Consistent with the types of strategies implemented, class-size reduction is defined in this report as any strategy designed to reduce the number of children in a classroom or to reduce the student-to-teacher ratio either for the whole day or for part of the day.

Research on class size reduction predominantly indicates that smaller classes in the early grades improve student performance, especially for lower income and minority students. Some studies have found that smaller class sizes significantly increased test scores (Greenwald, Hedges, and Laine, 1996; Finn, Gerber, Achilles, and Boyd-Zaharias, 2001). Nye, Hedges and Konstantopoulos (2000) found smaller class sizes in general relate to higher scores in reading and math from K-3. However, Hanushek, Kain, and Rivkin (1999) found that math scores were more positively affected than reading scores. Boozer and Rouse (2001) found that smaller class sizes helped to reduce the achievement gap for disadvantaged students. In a study of 54 Tennessee school systems, Wright, Horn, and Sanders (1997) found that class size had no significant effect on student outcome gains. While the evidence about class size has some inconsistencies, the higher quality studies consistently indicate that reducing class size in grades K-3 to fourteen or fewer students has been shown to produce long-lasting improvements in achievement. We should note, however, that the same studies that showed clear advantages for small classes in grades K-3 also showed that introducing teacher aides into classrooms had no effect on student outcomes.

Within the DSSF districts, three main strategies were employed under the heading of class-size reduction: 1) opening new classrooms, 2) hiring teacher aides, and 3) reducing class size through tutoring “pull-outs”.

First, 11 of the districts chose to hire teachers for new positions and to open new classrooms. In addition, one district used the term “class-size reduction” to maintain teaching positions that would have disappeared due to a declining student body and thus a decrease in state funding. Sometimes the division of children was strategic, with either the lowest performing or highest performing children from each class being moved to a new classroom. In other situations, the redistribution of children was random. Additionally, these teachers were not always hired in core, tested subjects. For example, one district hired two music teachers, three art teachers, and two Spanish teachers to “develop the whole child”. Another district hired a physical education teacher because core subject teachers were using part of their planning time to teach state-mandated physical education. More guidance may be needed in the types of teachers that districts are allowed to hire using DSSF funds.

Districts encountered problems implementing this type of class-size reduction in the first year of DSSF because of the mid-year timeframe. Students had to be moved to different classrooms in the middle of the school year, which caused disruption and stress for some students. Often, parents whose children were moved protested, causing difficulties for the principals. Additionally, hiring teachers mid-year can be quite difficult, and some districts were unable to fill the new positions that they created. Finally, many of the schools in the DSSF districts are housed in old, crowded buildings with temporary trailers that have been used in some cases for more than 15 years. There is no space for additional classrooms.

At least three superintendents were reluctant to hire teachers for new positions because there was no guarantee that DSSF funding would continue. These districts could not maintain these positions through local funds if DSSF were discontinued.

In 2005-2006, two additional problems arose as a result of funding and plans not being approved in time for spring hires for the following year. Districts generally make offers to teachers by June 15th for the following school year. Districts that could not maintain these positions through local funds were reluctant to make offers to these teachers until DSSF funding had been finalized. As a result, they allowed the deadline to pass without making offers to the teachers to renew their contracts. These teachers were told that the district “hoped” and “planned” to renew their contract but could not guarantee it. As a result, some teachers looked for other teaching positions in other districts, thus exacerbating turnover in these districts. Second, any orientation or transition programs utilized by schools to introduce students to their new teachers could not take place until the week before school started because students could not be assigned to teachers until the DSSF funding had been finalized and the additional classes confirmed.

Second, some districts hired teacher aides to lower the student-to-teacher ratio. As noted above, lowering teacher-student ratios by adding teacher aides in the classroom is not associated with improved student achievement in the research literature (Finn, et al., 2001). These aides worked with individual or small groups of students who were struggling to understand concepts. Again, problems encountered during the first year of DSSF funding included difficulty in hiring new aides midyear. Some districts gave principals discretion to hire either one teacher or two aides, depending upon available space and personnel.

Third, three districts hired tutors to pull low-performing children from the classroom for remediation and intensive one-on-one or small group help. The theory employed by these districts was that class-size was reduced for the other children in the classroom when this occurred, and therefore the entire class benefited from more personalized attention. However, these “pull-outs” were not consistently implemented. They were not daily, not always the same children, and not a consistent number of children. Tutors were also used to provide individual instruction but the districts did not consider them a strategy for class-size reduction.

Support for Lateral Entry Teachers (LETs) and Initially Licensed Teachers

Due to high teacher turnover rates, these districts also have a large number of initially licensed and lateral entry teachers. In North Carolina, the term “initially licensed teacher” (ILT) is used for a beginning teacher in a “three-year period of support and assessment.... The initial license, which is valid for three years, allows the teacher to begin practicing the profession on an independent basis. At the end of the three-year period, the teacher is either granted or denied a continuing license”⁹

“Lateral entry teacher” (LET) refers to a teacher entering through an “alternate” route to teaching for qualified individuals previously employed outside of the public education system. Lateral entry allows qualified individuals (defined as people who can document that they have appropriate education and experience related to the subject they will teach) to obtain teaching positions and begin teaching right away, while obtaining a license as they teach. Lateral entry teachers must meet testing requirements within the first two years of employment and have a maximum of three years to meet all course requirements, which must be completed at the rate of six semester hours each year.

⁹http://www.ncpublicschools.org/sbe_meetings/0302/0302_QP.pdf#search=%22lateral%20entry%20teachers%20required%20professional%20dev%22

Because they lack experience, both of these types of teachers require intensive mentoring and training, especially in their first three years of employment. Novice teachers are considered those with three years or less of teaching experience. Research finds the performance of novice teachers to be inferior to more experienced teachers (Rivkin, Hanushek, and Kain, 2005). A study of NY teachers demonstrated that “as teachers gained experience in their first three or four years, student performance increased” (Boyd, Lankford, and Loeb, 2004). “[R]esearch data from North Carolina reflects that by the end of the fifth year, a third of beginning teachers have exited the profession (Konanc, 1996).¹⁰ Teacher turnover is clearly a problem mitigating the positive effects of experienced teachers. If teachers continuously exit the field, students are left with novice teachers.

Districts used DSSF to fund a number of programs designed to provide the help that new teachers need in their first three years of teaching. These included supplementing the state’s current mentoring program, hiring full-time mentors, and providing increased professional development. In addition, three districts paid for PRAXIS test fees and for PRAXIS training courses.

Since 1985, all LEAs in North Carolina are required to provide each beginning teacher with a mentor. “The rationale behind this mandated support system is to provide beginning teachers support, consequently reducing the rate of teachers leaving the classroom.”¹¹ New teachers are also required to participate in a three-year induction program to gain additional support. According to interviews in the districts, the mentoring and induction program, though helpful, do not provide all of the support that beginning teachers need. As described in the interviews, current teachers with at least three years of experience serve as mentors in each school. Though all mentors receive training, the quality of the mentoring varies from school to school and from mentor to mentor, and the time available for mentors to work with new teachers is often inadequate.

Eight districts chose to use DSSF funding to hire new staff to provide additional support for novice teachers. Three districts offered orientation and “cultural adjustment” programs as a method of supporting initially licensed teachers and lateral entry teachers. Several districts relied on mentoring programs and wanted to provide mentors that would be available throughout the day, whenever new teachers needed help. The mentors provided through the state-mandated program are usually only available before and after school or during planning periods. These mentors are often spread thin, providing mentoring for three or four teachers or more in the school. Some districts wanted to provide intensive one-on-one help that included observation and feedback, lesson planning, modeling, and help with benchmark tests and pacing guides.

In most of the eight districts, retired teachers were hired as either full-time or part-time mentors. One district hired a full-time lateral entry teacher coordinator at the district level to provide the six hours of professional development each year that state mandates require for lateral entry teachers.¹² Though some principals did not think that these mentoring programs were successful

¹⁰ http://www.ncpublicschools.org/mentoring_novice_teachers/downloads/mentorteachershandbook.pdf

¹¹ http://www.ncpublicschools.org/mentoring_novice_teachers/downloads/mentorteachershandbook.pdf

¹² Staff dev program including two-week required training before teaching begins. 6 hours of course work at an approved program each semester (2003 DPI Website)

and called the mentors “feel good coaches”, teachers found most of these programs very helpful. In implementing this type of program, teachers believe that it is important that the mentors are available throughout the day and that they do not have so many new teachers to mentor that they cannot be easily contacted.

Support for Teachers Teaching Out of Field

Another problem facing many of these districts is a large number of teachers at the high school level who must teach classes outside of their area of educational expertise. As previously noted, teachers who have a degree in the subject they teach show greater student achievement (Goldhaber and Brewer, 1996; Monk and King, 1994). However, across the 16 pilot districts, very few algebra or geometry teachers had received a bachelor’s degree in mathematics. In one county, according to the interview data, 40% of teachers were not certified and only two of the math teachers in the entire county were certified in mathematics. Additionally, the district had no certified geometry teachers.

Superintendents and principals throughout these districts stated that there is a shortage of highly qualified math and science teachers in the state and that it is very difficult to attract them. Other subjects also suffer from similar shortages. Three districts used DSSF funding for strategies designed to put content expertise as close as possible to high school teachers. One district hired four well-respected, retired teachers who had specialized knowledge of disadvantaged children to help and mentor high school teachers in their area of expertise. Another district hired a “math coach” at the elementary level to mentor math teachers, provide benchmark tests, and review math assessment data. In a third district, “experts” in certain fields were hired to work with teachers at the high schools as trainers in such areas as math, civics, and language arts. These experts were people whom the district personnel met through education conferences, staff development trainers, and retired teachers and administrators.

Classroom Support for Limited English Proficiency (LEP) Students

The Hispanic and LEP population throughout northeastern North Carolina is growing. "Hispanics accounted for 27.5 percent of the state's population growth from 1990 to 2004 and 57 percent of the total enrollment growth in North Carolina Public Schools between school years 2000-2001 and 2004-2005."¹³ Additionally, at least one of the 16 districts contains a large population of migrant students who enroll, leave, and re-enroll as seasonal agricultural work and housing needs change. Seven districts chose to hire new LEP teachers or assistant teachers. However, two districts could not fill these positions either in 2004-2005 or 2005-2006. In the five districts that did hire new staff members, teachers and administrators said that in addition to their work with students, the new staff also made incredibly important improvements in communication with Spanish-speaking parents.

For decades, there has been considerable controversy over the use of students’ native language for instruction, and “research” on the topic has often seemed more like advocacy than an objective, data-based effort to discern the most effective instructional approach. However, the best analysis of the research we have been able to find indicates that the greater the use of

http://www.ncpublicschools.org/sbe_meetings/0302/0302_QP.pdf#search=%22lateral%20entry%20teachers%20required%20professional%20dev%22

¹³ (http://www.kenan-flagler.unc.edu/ki/reports/2006_HispanicStudy/)

bilingual instruction and Spanish speaking teachers in the classrooms, the greater the academic achievement of students learning English as a second language (Rolstad, Mahoney, and Glass 2005).

Other Instructional Support and Counseling Personnel

In addition to the four categories mentioned above, districts also hired support personnel for their teachers. For example, one district hired teachers to assist new teachers and to provide benchmark testing, personal education plans, and pacing guides for all teachers. Another district hired curriculum facilitators at each middle school and high school. These were generally well-respected teachers who were responsible for improving the school's data analysis capacity, helping principals, and designing remediation programs. A third district gave each school the discretion to hire a "permanent substitute" to be used at the principal's discretion for such tasks as tutoring students, supporting teachers through clerical help, creating benchmark tests, and manning in-house suspension and time-out rooms.

To address the high percentage of students not graduating, one district hired "drop-out counselors" for each high school. These counselors targeted 20 or more children at the beginning of the year based on risk factors and middle school recommendations. The counselors worked with the students throughout the year. The drop-out counselors also worked on GED and other drop-out issues with all students. Similarly, another district hired a full-time facilitator to work at all district middle and high schools, meet with parents and students individually, and to spend time with students in crisis situations. This district concluded that one person was not enough, and the district wants to hire additional facilitators in this role in the future.

Professional Development

Several important factors affected implementation of the districts' professional development plans. First, in 2005 the state legislature voted to increase the summer break for students by five days. In order to do this without cutting academic days, five paid teachers' work days/professional days were removed from the calendar across the state.

Second, teachers and district-level personnel were not always satisfied with the efforts put into professional development by school leadership. Many interviewees stated that for professional development to be effective, school leadership must ensure that training sessions are attended, appropriate, and useful. District officials and teachers reported that some principals did not provide information about opportunities or follow up on attended programs. Moreover, veteran teachers reported being cynical about professional development that was not a priority of the leadership, was disorganized, and that was not discussed at staff meetings or other appropriate forums ensuring that others who were unable to attend could benefit from the training. The teachers argued that principals and district leadership needed to be aware of what professional development was being attended and by whom, as well as how the new information learned could be relayed to other staff and incorporated into the classroom.

Finally, teachers reported feeling that the district did not treat them with respect when dictating which professional development opportunities teachers would be obligated to attend. Teachers and principals preferred to have some discretion in choosing appropriate professional

development because district personnel were not always aware of the particular needs of their schools. Teachers and principals believed the lack of autonomy for themselves and their school, as well as not being treated professionally, could cause teachers to leave the district.

A combination of district-mandated training that supports district initiatives and funding at the school level for more specialized training appears to be the most satisfactory way to determine professional development activities. Interview respondents argued that this is one area in which teachers and principals can feel empowered. The North Carolina Teacher Academy, discussed below, is one resource districts utilized for professional development needs that successfully allowed principals and teachers a sense of autonomy.

Developing and Refining Personal Education Plans

In the second year of DSSF, the Menu of Options included a focus on developing and implementing Personalized Education Plans (PEPs). The DPI outlined the following standards for PEPs as a tool for accountability:

The Student Accountability Standards, passed by the State Board of Education in April 1999, require each student in grades 3, 5, and 8 who does not score Level III or above on the End-of-Grade (EOG) test to have a personalized education plan (PEP). High school students who are required to take the exit exam but do not pass are also required to have a PEP. Schools and school districts are encouraged to develop a PEP for any student who is academically at-risk for not reaching proficiency levels on the state tests. PEPs must include: 1) a diagnostic evaluation, 2) intervention strategies, and 3) a monitoring component.¹⁴

At the recommendation of their LEAAP team, one district embraced the PEPs, and the teachers were anxious to use them in their classrooms. Another district used benchmark testing software to make PEPs more detailed and refined and provided staff development in making PEPs for Level 1 and 2 students. However, overall very little DSSF funding was spent on PEPs within the districts.

North Carolina Teacher Academy

“The North Carolina Teacher Academy is a professional development program for teachers established and funded by the North Carolina General Assembly. The mission of the Academy is to support continuous learning and the growth of a career teacher by providing quality professional development in the areas of school leadership, instructional methodology, core content, and use of modern technology in order to enrich instruction and enhance student achievement.”¹⁵

In relation to DSSF, the North Carolina Teacher’s Academy received \$2 million to offer training in DSSF districts. This allowed the districts to require district specific training, but still allow schools, teachers, and principals to choose appropriate training if they had extra time. Overall, teachers and principals across all districts praised the Teacher Academy, its classes and instructors. Districts used the Teacher Academy to train in research-based and best practices for

¹⁴ http://www.ncpublicschools.org/student_promotion/pep.html

¹⁵ <http://www.ga.unc.edu/NCTA/>

in-school and after-school programming. The Teacher Academy was also recognized to provide valuable training in the use of benchmark testing and pacing guides to raise test scores.

Extending Instructional Time

Research clearly shows that extending instructional time, especially through additional tutoring, has a positive impact on student outcomes. Wasik and Slavin (1993) found that for first graders in the lowest 20th percentile in reading ability, tutoring is effective in helping students learn to read. The study also found that tutoring programs used within the classroom were more effective than tutoring outside of the classroom and programs using certified teachers had greater success than those utilizing paraprofessionals. A meta-analysis of research on tutoring carried out by D'Agostino and Murphy (2004) found that students who have participated in Reading Recovery (RR) scored significantly higher on post-tests than similar students who did not participate in RR. The gains were even more pronounced for students who completed the full Reading Recovery program.

All districts chose to use DSSF funding to implement some form of remedial tutoring. These included after-school programs, during-the-school-day tutoring, and summer school programs. The stated goal of all of these programs was to improve test scores and reduce the number of Level 1 and 2 children in the districts. The tutoring included the use of paid and unpaid teachers, uncertified tutors, and teacher aides, as well as extensive use of remediation software programs such as Study Island. Most districts measured the success of these programs in terms of student attendance or participation in tutoring sessions, though a few were able to track student achievement through gains on benchmark tests.

After-School Programs

Twelve of the 16 districts utilized DSSF funds to implement new or expand existing after-school programs focused on remedial tutoring in tested subjects at some or all of their schools. These programs met with varying degrees of success, which for the most part was measured in terms of student attendance rather than achievement. All districts allowed schools some flexibility in implementing their programs, which increased success in some areas. Generally, elementary programs were better attended than middle school and high school programs. Middle school success in student attendance varied, but only a handful of high schools were able to establish programs that maintained attendance throughout the year. Teachers and principals attributed low attendance at the high school level to student apathy, lack of parental involvement, competition with extracurricular activities, and the voluntary nature of any after-school program.

Many teachers attributed the success or failure of these programs in all grade levels to effective or ineffective leadership within the school. As described by teachers, principals who actively engaged students and were the educational leaders of their school tended to put more emphasis on remediation and devoted more time to ensuring the success of these programs. Principals who spent less time in the classrooms and who were not involved with the students and their families were less likely to devote resources and time to these programs.

Many of the schools visited for this report already had some form of after-school tutoring in place before DSSF was initiated. This was due in part to NCLB regulations that Title I schools

that had not made AYP for three or more years must devote some portion of their Title I funding to supplemental services including after-school programs. In these cases, DSSF was used to expand the existing programs, either by increasing teacher pay, extending hours, providing snacks, providing more extensive transportation services, or expanding the number of children allowed to attend.

Transportation, which is crucial to the success of any program scheduled outside of the regular school day, was a major implementation issue that arose with these after-school programs. Most of the 16 districts are rural and geographically large. In some districts, bus routes extend for two hours or more. Additionally, these districts are all very poor. Many parents do not own cars, and public transportation is non-existent. In these cases, it is impossible for children to attend an after-school program without transportation home. As gasoline prices have risen over the last two years, schools are finding the costs of transportation for their after-school programs skyrocketing. A few schools chose to extend the entire school day by 45 minutes to one hour and to provide “fun” tutoring to all students, regardless of test score levels. Buses did not run until the end of these tutoring sessions. This also proved to be expensive because teachers, who were required to stay, were paid for the extra hours at their regular pay scale. Many schools were forced to discontinue their after-school programs because of these high costs and chose to concentrate on providing during-the-day tutoring instead. Even at this point in our study, it is clear that availability of transportation is critical to the success of future after-school program endeavors.

Saturday Academies

Seven districts used DSSF to fund Saturday academies, designed to provide remediation for students, usually close to testing time. One district used Saturday instruction for high school students with attendance-related issues that could affect their ability to graduate. Another district concentrated on course recovery for high school students. A third district provided a program for elementary and middle school students in seven churches in the district. The churches provided the facility and snacks, and the schools paid teachers a stipend for the tutoring. Overall, the programs were only considered successful by the staff in terms of attendance during the weeks leading up to testing time. A few districts tried to expand the programs to run year-round but were not able to attract enough students to make them worthwhile.

Pull-Outs during the Day

Ten districts chose to use DSSF funds for during-the-day remedial tutoring of students who had not achieved proficiency in one or more subjects. In some districts, these pullouts were in lieu of other tutoring programs such as after-school sessions or Saturday academies, but in other districts during-the-day pull-outs were implemented in conjunction with outside-the-day programs. In some schools, tutors were hired specifically to provide these sessions. In other schools, teachers tutored during their planning periods, and teacher aides were pulled from classrooms during part of the day to provide tutoring to children in tested grades.

Three main reasons were given by school personnel for choosing to provide during-the-day tutoring. First, pull-outs are significantly less expensive than after-school programs because they involve no additional transportation costs. When gasoline prices rose in the aftermath of Hurricane Katrina, many schools were forced to cut their after-school programs due to budget

constraints and opted for during-the-day tutoring instead. Second, students are captive in school and must attend tutoring sessions. Especially in high school, and to a lesser degree middle school, both extracurricular activities and the voluntary nature of after-school programs meant that many were poorly attended. With administrators keenly aware of test scores and the need to provide remediation to these students, during-the-day tutoring was often seen as the only way to require these students to get the extra help that they needed. Third, as mentioned earlier, three districts saw during-the-day tutoring as a strategy for lowering class size and thus allowing for more individualized instruction for the students remaining in the classroom.

Implementation issues did arise with during-the-day tutoring programs. In some schools, tutoring took place in the classroom with individuals or small groups of students who needed additional help in math or English. In these situations, the tutor stayed in sync with classroom instruction, providing more individualized instruction. However, in most cases, students were pulled from non-core classes such as art, music, science, and social studies for remedial tutoring in mathematics and language arts. While tutoring sessions usually occurred on a schedule, the schedule might not be daily. As a result, students who received tutoring attended the class from which they were pulled irregularly. Especially in subjects such as science and social studies, this caused students to fall behind, potentially caused discipline issues, and disrupted instruction. Teachers of these non-core subjects expressed frustration with this system, although they acknowledged that when students could not read the text, it was equally frustrating. Teachers and principals also said that students were not happy to be pulled from “fun” classes.

At least one district had difficulty hiring enough qualified tutors mid-year in the first year of DSSF. When tutors were spread too thin and could not provide consistent tutoring, it caused disruptions for the classroom teachers. In another district, any “spare” personnel -- including teachers during planning time, teacher aides, and specialist teachers -- were used in combination to provide lower student-to-teacher ratios and remedial instruction. While this may have helped with remediation and test scores, it also exacerbated the teacher turnover problem: teachers were required to teach for more hours each day without receiving additional compensation. Additionally, with less planning time, they felt that their classroom instruction suffered.

The overall consensus across the districts was that the pull-outs could be a more effective form of remediation, especially for high school students, than after-school or Saturday programs. However, research indicates that tutoring needs to be on a consistent schedule, both to help the children and to minimize the disruption to teachers from which the children are pulled. Finally, schools need to be strategic about which classes students miss.

Summer School

Four districts used DSSF to fund or extend summer remediation programs. One major implementation issue that affected the use of DSSF for any summer program was the June 30th deadline for spending DSSF funds. All programs funded with DSSF funds for a given year must end by June 30th of that year. As a result, these programs must be offered for only a short stretch at the beginning of the summer. This undermines attempts to use summer programs as a transition, as a means to ameliorate summer learning loss, or as a remediation program to help students attain proficiency before the following school year.

Technology

Most research concerning technology in schools relates primarily or exclusively to students' use of computers rather than to the impact of technology on student outcomes. Liao (1992) identified and conducted a meta-analysis of 31 studies that did focus on the relationship between computer usage and academic achievement. Computers were used in classrooms for tutorials, drill and practice, problem solving, or simulation programs.

DSSF districts did buy computers for classrooms, but also used DSSF funds for other types of technological innovations. Fourteen of the 16 districts used at least a portion of their DSSF allotment for computer or technology infrastructure upgrades. The two districts that did not were specifically told by their LEAAP teams that this was not an allowable DSSF expenditure.

Some districts used the funds for technology upgrades in classrooms and to set up distance learning labs. This allowed students across the district to take the same class together through video and computers, thereby reducing the need for multiple teachers in specialty areas, such as astronomy.

Technology funds were also used for infrastructure improvements; one district increased bandwidth in all schools for wireless labs and distance learning labs. Others provided internet capacity to all classrooms in the district or provided email addresses to all school district employees.

Districts used technology to address many of the problems that plague low-wealth districts. Some teachers, principals, and district-level personnel believed that increased technology allowed greater exposure to "the world" and allowed the districts to feel more modern. The technology upgrades also allowed the districts to "level the playing field" with students across the state and across the nation. Teachers also noticed that new computers increased students' excitement about learning.

In terms of specifically addressing the needs of the academically disadvantaged students, increased technology provided for course recovery (Novanet) and allowed students to work at their own pace during remediation.

While there were many advantages to the new technology, several problems were also created. Many principals and teachers complained that there were issues and problems requiring technical support, which was scarce. Many teachers stated that they did not receive the proper training or professional development necessary to correctly use some of the software or remediation programs. Further, the increased infrastructure needed to keep pace with available hardware. For example, problems with available bandwidth and security plagued many districts. If technology is to be used effectively, it may be necessary for districts to hire additional technical support to meet the needs of teachers and schools. Moreover, districts must ensure that technology equipment is installed, functioning properly, and evaluated regularly for needed maintenance or upgrades.

LEAAP Program

Prior to the advent of the DSSF pilot, the Local Education Agency Assistance Program (LEAAP) had been assigned to work with the lowest performing districts in the state according to the ABC composite scores. The main goals for these teams were to increase student achievement in these districts and to increase the districts' internal capacity for continuing to make improvements. The responsibilities for district assistance were developed to enhance and sustain the efforts of DPI school assistance teams which were required in the School-Based Management and Accountability Act of 1995. The LEAAP teams were reassigned to assist with the DSSF districts in 2004, which involved monitoring of the local plans and budgets for compliance along with assistance in selecting and implementing approved strategies from the Menu of Options. Recently, LEAAP was again reassigned to assist in selected districts with the greatest number of schools requiring corrective action.

Role of LEAAP Teams in DSSF

The State Board of Education added a new role for the LEAAP teams specific to the 16 DSSF districts when the DSSF program began in 2004. The LEAAP teams were assigned to provide support in the development of each district's plan, review the plan for compliance with the DSSF funding requirements, and monitor the activities in each district. The LEAAP teams assigned to DSSF districts were staffed primarily by independent contractors who worked with the districts and supervised by the Office of the Associate Superintendent for Curriculum and School Reform Services within the Department of Public Instruction. The teams varied from one to four members per district.

The changing focus of the LEAAP teams from long-term assistance in low-performing districts to monitoring and support for DSSF districts resulted in some confusion about their role within the DSSF districts. Due to limited capacity at the state level and a short amount of start-up time, LEAAP team members did not attend a formal training session about the goals and strategies needed to address the DSSF districts. Instead, they received an orientation session about the goals of the DSSF program during the summer of 2004. The individual LEAAP team members then immediately began working with the individual districts to put together the districts' plans for 2004-2005.

Primary Role of the LEAAP Teams in the Individual Districts

The interviews with personnel from the districts and the individual schools revealed a variety of different roles that were played by the LEAAP teams. The two most common roles were to help write and edit the DSSF plans and to act as an advisor/mentor for district office personnel. However, each of these two roles was only directly reported by five individual districts. The assistance in developing the district plans ranged from basic grammar and formatting edits to content editing based on the LEAAP team members' perceptions of DPI priorities. Some LEAAP team members helped districts disaggregate student test data to help identify target areas for improvement. Five districts had LEAAP team members that provided advice concerning the operation of the district, ways in which funds could be allocated to achieve the educational purposes of the districts, or cultivating leadership abilities.

Four districts reported the primary role of the LEAAP team was in terms of oversight and compliance. LEAAP team members were viewed as “gate-keepers” for the use of DSSF funds by reviewing plans to assure that they followed State Board rules and approving changes to the plans midyear.

In three districts, the superintendent assigned LEAAP team members to schools. At the schools, they helped mentor new teachers including modeling lessons; helped principals with budgeting; disaggregated student data; and provided tutoring to students. In one district, LEAAP team members worked with new teachers on instruction, especially for Level 1 and 2 students.

Two districts used the LEAAP teams to monitor and evaluate the implementation of DSSF in the schools. In one district, this included a formative evaluation in which implementation at the schools was monitored and feedback was provided to the district to adjust the plan. The other district monitored the PEP development and implementation, including formal observations of new teachers.

The LEAAP teams also functioned as mentors to schools administrators in two districts. They provided assistance with leadership skills, observation of and feedback to teachers, and helped write School Improvement Plans. In two other districts the LEAAP teams provided staff development in EVAAS and PEP development. They also implemented training and offered advice on school professional development plans.

One district incorporated the LEAAP team into the district office. The team was provided their own office and the superintendent thought of them as part of the district staff. Finally, the amount of time the LEAAP team spent in the district varied considerably. Some were in schools one to two days a week, and others only visited the district office about once a month or less.

Issues in LEAAP Team Implementation

Due to the variety of roles taken on by the LEAAP teams and the limited amount of guidance and up-front training they received, it is not surprising that issues arose during the teams’ interactions with the individual districts. The issue that most affected implementation of DSSF was conflicting information provided to the districts through LEAAP team members and DPI documentation.

For example, four individual districts reported being told by their LEAAP team that offering across-the-board salary supplements using DSSF funds was prohibited in 2005-2006. However, these districts later discovered two other districts continued to offer such salary supplements, and one implemented a new across-the-board supplement in 2005-2006. Two districts reported being told that technology hardware was not an allowable expenditure under DSSF regulations, despite the fact that thirteen districts used DSSF to purchase computer hardware.

One district reported that their LEAAP team insisted that they must devote some funds to PEP development and implementation. However, eight other districts did not include this strategy into their DSSF plans. Finally, one district was told they could not amend their 2004-2005 plan.

This district appealed directly to the State Board over the objection of the LEAAP team. An additional district reported initially being told the same thing. However, the LEAAP team changed their position and worked with the district to submit a revised 2004-2005 plan. Ultimately, all districts adjusted their plans when funds could not be expended as originally planned, often due to the inability to fill new teaching positions.

Current LEAAP Structure

When the DSSF program was extended statewide in 2006-2007, the mission of the LEAAP teams was changed yet again. They no longer worked with the individual districts. Specific to the DSSF, LEAAP teams were disbanded, and three full-time employees were assigned to monitor and aid all districts with their plans. LEAAP was reassigned from the task of supporting the DSSF pilot districts to the task of assisting selected districts that had the largest percentages of schools requiring corrective action as required under No Child Left Behind (NCLB) and serving districts with the lowest ABC performance composites.

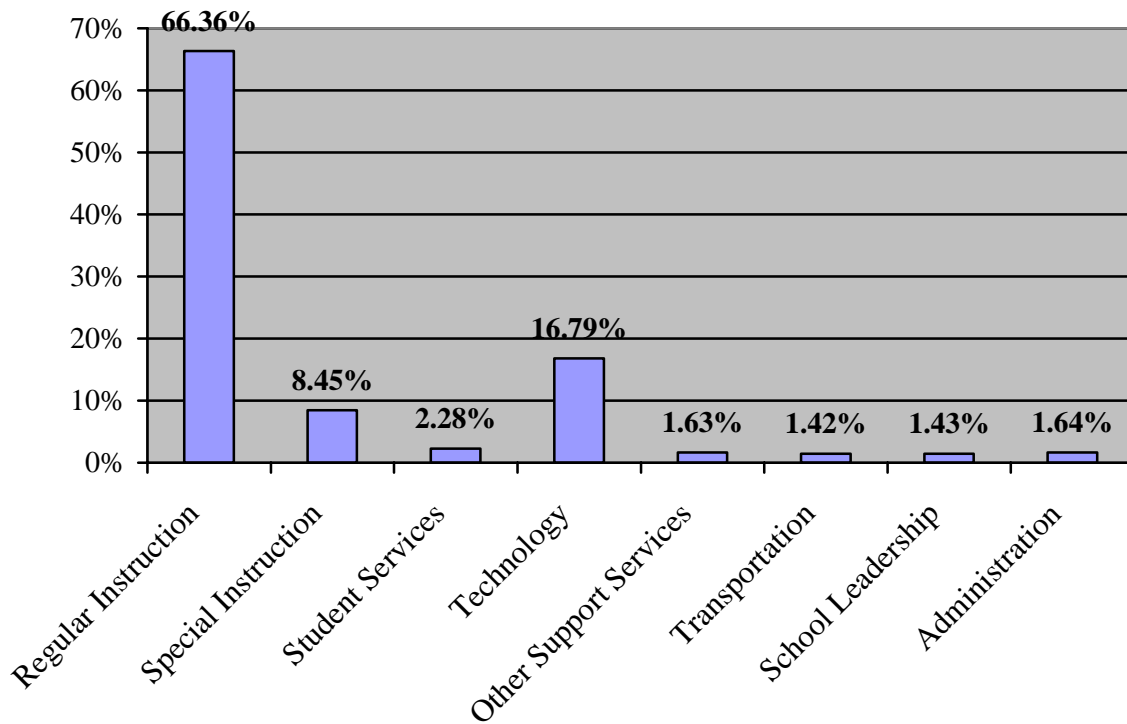
DSSF Expenditures in 2004-2005

Thus far, we have presented information about how the DSSF funds were used by the 16 districts. In this section, we show the proportion of DSSF funds that were used in various categories of expenditure developed by the evaluation team in consultation with DPI, and how much of an increment DSSF added to the districts' expenditures. We have analyzed the expenditures by these categories.

Distribution of DSSF

DSSF funds were spent across eight expenditure categories, with the majority of funds directed to salaries and bonuses (71%) for teachers providing regular classroom instruction and the smallest portion directed towards school leadership activities (1.48%) (Figure 4.1).

Figure 4.1
Distribution of DSSF Expenditures by Relevant Expenditure Categories



Regular Instruction

Regular instruction includes classroom and supplemental expenses for teacher, teacher assistant, and substitute salaries, as well as benefits. It also encompasses supplemental pay related to overtime, local salary differentials, other types of supplementary pay, and annual leave and longevity pay. As related to the Menu of Options, this expense category corresponded most closely to “recruiting and retaining teachers” and other “personnel”.

Over 65% of all funding provided through the DSSF was spent on regular instruction (Figure 4.1). Among the individual districts, this percentage ranged from 37% in Edgecombe to a full 87% in Halifax (Table 4.1). The need to attract quality teachers and reduce turnover was a primary issue emphasized by the individual districts. The high percentage of the DSSF expended in this area reflects that concern.

When examined by per-pupil amount, an average of \$167.59 was spent on each pupil in the DSSF districts under the heading of regular instruction (Table 4.2). This amount ranged from \$234 per pupil in Halifax to \$94 per pupil in Edgecombe.

Special Instruction

The special instruction category covers all non-regular and special instruction expenses related to teacher, teacher assistant, and substitute compensation, including salaries and fringe benefits.

Akin to regular instruction, it also covers supplemental pay related to overtime, local salary differentials, other types of supplementary pay, and annual leave and longevity pay for staff members outside the regular instruction category. This category also includes any professional development and classroom materials such as instructional supplies and textbooks related to specialized instruction and non-regular classrooms. As related to the Menu of Options, this expense category draws from all categories of personnel and retention, professional development, extended instructional costs, and materials and supplies.

DSSF districts spent over 8% of the total DSSF funding on this category (Figure 4.1). Among the individual districts, this expense category ranged from 25% of the district's DSSF funds in Northampton to only 1.3% in Lexington (Table 4.1).

There was a greater range of spending within districts in terms of per-pupil amount. While the DSSF-wide average was \$21.39, Northampton spent as much as \$64.99 per pupil on special instruction, while Lexington spent only \$3.48 (Table 4.2).

Student Services

The student services category applies to any expenditure related to guidance, provided psychological or health services, or speech. In terms of the Menu of Options, these expenditures are most closely related to "personnel" and "extended instructional time" related to out-of-classroom guidance or speech programs.

Across the total available through DSSF, 2.28% of the total funding was spent on student services (Figure 4.1). Within the individual districts, expenditures on student services ranged from nearly 10% in Edgecombe to only 0.21% in Weldon City (Table 4.1).

Again, due to the number of students in the county, there was a greater variation within districts in terms of per-pupil expenditures. The average per pupil amount was \$5.76 (Table 4.2). However, districts ranged from \$25.03 in Edgecombe to only \$0.56 per pupil in Weldon City.

Technology

After regular instruction, technology received the largest share of DSSF expenditures in the first year. This category encompasses includes all technological hardware and software, instructional supplies and materials related to technology, and non-capitalized equipment. All of these expenditures correspond to the instructional materials section of the Menu of Options.

DSSF districts spent nearly 12% of the total DSSF funds on technology (Figure 4.1). Thomasville spent over 39% of their DSSF funds on technology. However, Robeson used only 1.67% of their DSSF on technology, and Halifax had no expenditures in this category (Table 4.1).

Technology is the second highest per pupil expenditure category, behind regular instruction. On average, the DSSF districts expended \$43.46 on each student for technology (Table 4.2). This expenditure amount ranged from over \$100 per pupil in two counties (Hyde and Thomasville) to zero in Halifax.

One reason for the high percentage of expenditures in this category may have to do with timing. Since the districts did not receive their first year funding until mid-year, many did not have time to spend the money as intended – primarily on new hires. Therefore, to keep from losing the money at the end of the school year, many districts invested in needed technology supplies and infrastructure upgrades instead.

Other Support Services

Other support services include any expenditure not directly related to student instruction but related to student support or instructional support. Items for this category may come from any of the Menu of Options categories.

Only 1.63% of the total available DSSF dollars were spent in this category (Figure 4.1), though there was some variation among the individual districts. For example, Montgomery spent approximately 5% of their DSSF funds in this category, while Lexington spent only 0.2% of their DSSF funds in this area (Table 4.1).

In terms of per pupil spending, DSSF districts expended an average of \$4.10 in this category (Table 4.2). Individual district expenditures ranged from nearly \$20.00 in Edgecombe to only \$0.38 in Franklin.

Transportation

Across the entire DSSF, transportation accounted for 1.42% of expenditures (Figure 4.1). These expenses are related to the extended instructional time category of the Menu of Options. Many districts needed to provide after-school transportation for their programs being offered through DSSF.

Individual district transportation expenses ranged from 7.46% in Northampton to only 0.07% in Thomasville (Table 4.1). While the average DSSF per-pupil expenditures for transportation were \$3.55, Northampton spent nearly \$20.00 per pupil on transportation costs. These costs were primarily associated with after-school programs. It is important to note that all districts incurred transportation costs, even if it was a small percentage of their overall DSSF budget.

School Leadership

The school leadership category was one of the smallest percentage of DSSF expenditure (1.42%). It is difficult to determine which specific Menu of Options category would fit this expenditure category, but most likely these expenses are related to professional development activities.

There was some variability among the individual districts. For example, Halifax spent over 6% of their total DSSF funds in this area, compared to Warren County, which expended 0.3% of their DSSF allowance on school leadership (Table 4.1).

The DSSF average per pupil expenditure in this category was \$3.70 (Table 4.2). While Halifax spent nearly \$18 per pupil on school leadership, Warren spent only \$0.84.

As previously stated, one of the issues facing DSSF districts is the problem of assuring effective leadership within the individual schools and at the district level. However, the Menu of Options did not specifically provide a category for leadership and provided no options for improving principal leadership. Therefore, it is not surprising that such a low percentage of the available funds were expended in this area.

Administration

The last expenditure category is related to administration at the district level. Across the entire DSSF, less than 1.64% was spent in this area (Figure 4.1). All individual districts spent some of the funds in this category, ranging from 9% in Edgecombe to 0.24% in Warren and Montgomery (Table 4.1). In terms of per pupil expenditures, DSSF districts spent an average of \$4.21 on central administration (Table 4.2).

Table 4.1
Distribution of DSSF 2005 Expenditures by District

	Regular Instruction	Special Instruction	Student Services	Technology	Other Support Services	Transportation	School Leadership	Admin.
DSSF Avg.	66.36%	8.45%	2.28%	16.79%	1.63%	1.42%	1.43%	1.64%
Edgecombe	37.37%	12.58%	9.89%	18.69%	7.70%	0.32%	4.22%	9.25%
Franklin	76.58%	4.52%	1.96%	15.80%	0.16%	0.26%	0.47%	0.25%
Halifax	87.41%	2.29%	1.17%	0.00%	1.09%	0.46%	6.67%	0.91%
Hertford	57.11%	21.37%	2.41%	10.09%	0.61%	1.79%	0.55%	6.08%
Hoke	78.28%	7.40%	2.35%	8.93%	0.26%	1.01%	1.46%	0.30%
Hyde	47.86%	11.90%	0.32%	37.29%	0.55%	0.34%	0.86%	0.87%
Lexington	85.46%	1.30%	2.40%	9.49%	0.19%	0.22%	0.54%	0.42%
Montgomery	56.51%	11.72%	6.49%	16.89%	4.96%	0.79%	2.40%	0.24%
Northampton	40.32%	25.23%	0.27%	23.71%	2.23%	7.46%	0.44%	0.34%
Pasquotank	60.97%	12.62%	3.18%	17.30%	4.64%	0.57%	0.43%	0.28%
Robeson	86.78%	7.33%	0.54%	1.67%	0.27%	2.57%	0.58%	0.26%
Thomasville	52.46%	2.86%	2.02%	39.02%	0.82%	0.07%	1.93%	0.82%
Vance	72.21%	4.32%	1.50%	17.73%	0.20%	3.00%	0.60%	0.45%
Warren	76.41%	3.27%	1.47%	14.29%	1.47%	2.53%	0.33%	0.24%
Washington	67.30%	5.16%	0.30%	20.99%	0.51%	0.30%	0.74%	4.70%
Weldon City	78.68%	1.35%	0.21%	16.73%	0.43%	1.03%	0.70%	0.87%

**Table 4.2
2005 Per Pupil Expenditures**

Per Pupil	Regular Instruction	Special Instruction	Student Services	Technology	Other Support Services	Transportation	School Leadership	Admin.
District Avg.	\$167.59	\$21.39	\$5.76	\$43.46	\$4.10	\$3.55	\$3.70	\$4.21
Edgecombe	\$94.61	\$31.84	\$25.03	\$47.32	\$19.49	\$0.80	\$10.69	\$23.42
Franklin	\$188.79	\$11.15	\$4.83	\$38.96	\$0.38	\$0.64	\$1.15	\$0.61
Halifax	\$234.40	\$6.14	\$3.13	\$0.00	\$2.92	\$1.23	\$17.90	\$2.45
Hertford	\$147.10	\$55.03	\$6.21	\$25.99	\$1.56	\$4.61	\$1.41	\$15.65
Hoke	\$192.33	\$18.19	\$5.79	\$21.95	\$0.65	\$2.48	\$3.58	\$0.74
Hyde	\$136.16	\$33.87	\$0.91	\$106.09	\$1.58	\$0.97	\$2.45	\$2.48
Lexington	\$228.30	\$3.48	\$6.40	\$25.34	\$0.50	\$0.59	\$1.43	\$1.12
Montgomery	\$142.81	\$29.61	\$16.40	\$42.68	\$12.52	\$2.00	\$6.06	\$0.62
Northampton	\$103.87	\$64.99	\$0.69	\$61.08	\$5.74	\$19.22	\$1.14	\$0.87
Pasquotank	\$142.13	\$29.42	\$7.41	\$40.33	\$10.82	\$1.33	\$0.99	\$0.66
Robeson	\$175.28	\$14.82	\$1.09	\$3.37	\$0.55	\$5.18	\$1.17	\$0.52
Thomasville	\$138.64	\$7.56	\$5.35	\$103.12	\$2.17	\$0.19	\$5.09	\$2.17
Vance	\$184.70	\$11.05	\$3.84	\$45.35	\$0.52	\$7.68	\$1.53	\$1.14
Warren	\$195.75	\$8.38	\$3.75	\$36.60	\$3.75	\$6.48	\$0.84	\$0.61
Washington	\$172.33	\$13.22	\$0.77	\$53.75	\$1.31	\$0.76	\$1.88	\$12.04
Weldon City	\$204.19	\$3.51	\$0.56	\$43.42	\$1.11	\$2.67	\$1.83	\$2.25

DSSF Expenditures as a Percentage of Total District Funding

We also utilized a second approach to examining how districts utilized their DSSF dollars: of a district's total spending, we determined the percentage funded by DSSF. For the 16 pilot districts, the DSSF funds totaled 2.8% of all expenditures (Table 4.3). Examining the expenditure categories, even those that saw the bulk of DSSF spending shows the same pattern. Within regular instruction, which received nearly 70% of total DSSF expenditures, only 4% of total regular instruction expenditures came from DSSF.

There was also variability across districts. For example, of all spending on regular instruction, nearly 6% in Halifax was from DSSF. Conversely, Hyde spent DSSF only 2% of their regular instruction expenditures.

An examination of the individual expense categories and individual districts indicates that the DSSF funds were a very small percentage of total district funding. This is important to note. Such a small amount of funding relative to the total budgets should not be expected to produce dramatic, immediate changes in student test scores.

Table 4.3
DSSF Spending as a Percentage of Total Spending by Category

	Regular Instruction	Special Instruction	Student Services	Technology	Other Support Services	Transportation	School Leadership	Admin.
DSSF Avg.	4.08%	1.80%	1.39%	27.58%	1.44%	1.18%	0.75%	0.85%
Edgecombe	2.64%	3.16%	4.98%	31.30%	6.12%	0.33%	2.36%	5.09%
Franklin	5.20%	1.41%	1.07%	63.47%	0.19%	0.23%	0.29%	0.24%
Halifax	5.88%	0.46%	0.71%	0.00%	1.01%	0.34%	3.29%	0.44%
Hertford	3.66%	4.46%	1.06%	13.79%	0.44%	0.86%	0.30%	3.20%
Hoke	5.28%	1.66%	1.46%	12.78%	0.26%	1.00%	0.97%	0.26%
Hyde	1.94%	2.20%	0.17%	46.71%	0.23%	0.20%	0.24%	0.19%
Lexington	5.27%	0.25%	1.26%	37.79%	0.33%	0.26%	0.28%	0.20%
Montgomery	3.37%	2.59%	4.67%	28.18%	3.73%	0.83%	1.36%	0.19%
Northampton	2.69%	4.98%	0.15%	25.40%	1.56%	5.25%	0.20%	0.13%
Pasquotank	3.83%	2.82%	2.06%	15.42%	5.75%	0.54%	0.27%	0.20%
Robeson	4.81%	1.35%	0.29%	2.33%	0.32%	2.21%	0.32%	0.26%
Thomasville	3.27%	0.63%	1.58%	31.27%	0.73%	0.19%	1.00%	0.45%
Vance	4.56%	1.05%	1.35%	27.86%	0.25%	3.52%	0.39%	0.27%
Warren	4.93%	0.72%	0.93%	28.65%	1.66%	1.32%	0.17%	0.10%
Washington	3.56%	0.78%	0.29%	34.82%	0.30%	0.24%	0.33%	2.28%
Weldon City	4.46%	0.22%	0.19%	41.46%	0.23%	1.57%	0.27%	0.18%

Conclusion

In spring 2006, we asked district personnel to identify their districts' major problems and explain their rationales for the use of DSSF funds. They identified problems of two distinct types: 1) high teacher and leadership turnover, which most linked to poor student outcomes, and 2) low student test scores and high dropout rates. The 16 DSSF districts matched the funding provided by DSSF to these problem areas. Funds from DSSF were primarily applied to areas of regular instruction, including classroom and supplemental expenses related to teacher, teacher assistant, and substitute salaries. These spending choices attempted to address high teacher turnover and attract quality teachers. Special instruction and technology were also funded in an attempt to address poor student performance and retain students in school.

The technical assistance provided by the Department of Public Instruction through its LEAAP teams was valuable to many districts, but at times the guidance was inconsistent. The LEAAP teams were assigned to provide support in the development of each district's plan, review the plan for compliance with the DSSF funding requirements, and monitor the activities in each district. The issue that most affected implementation of DSSF was the conflicting information provided to the districts. The capacity of the DPI to provide guidance to school districts that will

result in effective and sustainable changes has been severely constrained by lack of staff and funding to develop and carryout technical assistance. Assistance to districts targeted at maximizing the use of available funds to meet student needs and mobilize resources on behalf of struggling and disadvantaged students is crucial as a means to combat the state's high turnover rates and lack of fully trained, experienced teachers.

The guidance provided to the disadvantaged districts throughout the State should be based on the best research that is available and a coherent framework for achieving success. Research supports that schools that focus on student achievement, on-time promotion, and graduation, attend to the data on student performance and attendance in real-time, and develop ways to work together effectively as cohesive units provide the highest likelihood for student success. This takes leadership, structure, resources, accurate real-time assessments of student progress throughout the school year, student focused interactions, and tremendous amounts of effort and commitment. Turnover of school leaders, whether they are principals or teachers, lack of preparation, and lack of coherent strategies for creating effective interactions among educators and students throughout every school can hinder school effectiveness. It is unlikely that the disadvantaged school districts in the state will be able to achieve success without support and guidance. A comprehensive, evidence-based framework, broad-based participation and support, and stable guidance from the Department of Public Instruction and the organizations with whom it chooses to partner will be needed to raise achievement and lower drop-out rates in the disadvantaged districts and schools.

References

- Boozer, M., & Rouse, C. (2001). Intraschool Variation in Class Size: Patterns and Implications. *Journal of Urban Economics*, 50(1), 163.
- Bowles, S., & Levin, H. M. (1968). The Determinants of Scholastic Achievement--An Appraisal of Some Recent Evidence. *Journal of Human Resources*, 3(3), 3-24.
- Boyd, D., Lankford, H., & Loeb, S. (2004) "Placing the Preparation and Recruitment of Teachers into a Labor Market Framework" (with D.) in F. Hess, A. Rotherham and K. Walsh (ed.) *A Qualified Teacher in Every Classroom: Appraising Old Answers and New Ideas*, pp.149-172.
- Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weindfeld, F. D., et al. (1966). *Equality of Educational Opportunity*. Washington, D.C.: U.S. Dept. of Health, Education, and Welfare, Office of Education.
- D'Agostino, J. V., & Murphy, J. A. (2004). A Meta-Analysis of Reading Recovery in United States Schools. *Educational Evaluation and Policy Analysis*, 26(1), 23.
- Darling-Hammond, L, Holtzman, D.J., Gatlin, S.J.,& Heilig, J. V. (2005). Does Teacher Preparation Matter? Evidence about Teacher Certification, Teach for America, and Teacher Effectiveness. *Education Policy Analysis Archives*, 13(42).
- Darling-Hammond, L. (1992). Educational Indicators and Enlightened Policy. *Educational Policy*, 6(3), 235.
- Druva, C. A., & Anderson, R. D. (1983). Science Teacher Characteristics by Teacher Behavior and by Student Outcome: A Meta-Analysis of Research. *Journal of Research in Science Teaching*, 20(5), 467.
- Education Commission of the States. (2005). *Eight Questions of Teacher Licensure and Certification: What Does the Research Say?* Denver. From: <http://www.ecs.org/>
- Ferguson, P., & Womack, S. T. (1993). The Impact of Subject Matter and Education Coursework on Teaching Performance. *Journal of Teacher Education*, 44(1), 55.
- Ferguson, R. F. (1991). Paying for Public Education: New Evidence on How and Why Money Matters. *Harvard Journal on Legislation*, 28(2), 465-498.
- Ferguson, R. F. (1998). "Can Schools Narrow the Black-White Test Score Gap?" In C. J. a. M. Phillips (Ed.), *The Black White Test Score Gap* (pp. 318-374). Washington, D.C.: Brookings Institution Press.
- Ferguson, R. F., & Ladd, H. F. (1996). How and Why Money Matters: An Analysis of Alabama Schools. In *Holding Schools Accountable: Performance-based Reform in Education* (pp.

- 265): Washington, D.C. Brookings Institution.
- Finn, J. D., Gerber, S. B., Achilles, C. M., & Boyd-Zaharias, J. (2001). The Enduring Effects of Small Classes. *Teachers College Record*, 103(2), 145.
- Goldhaber, D. & Anthony, E., (2004). Can Teacher Quality be Effectively Assessed?, from <http://www.urban.org/url.cfm?ID=410958>
- Goldhaber, D. D., & Brewer, D. J. (2000). Does Teacher Certification Matter? High School Teacher Certification Status and Student Achievement. *Educational Evaluation and Policy Analysis*, 22(2), 129.
- Goldhaber, D. D., & Brewer, D. J. (1998). When Should We Reward Degrees for Teachers? *Phi Delta Kappan*, 80(2), 134.
- Goldhaber, D., & Brewer, D. (1997). Evaluating the effect of teacher degree level on educational performance. In W. Fowler (Ed.), *Developments in School Finance*. Washington, D.C.: U.S. Department of Education, National Center for Education Statistics.
- Goldhaber, D. D., & Brewer, D. J. (1996). *Evaluating the Effect of Teacher Degree Level on Educational Performance*: National Center for Education Statistics.
- Greenwald, R., Hedges, L. V., & Laine, R. D. (1996). The Effect of School Resources on Student Achievement. *Review of Educational Research*, 66(3), 361
- Hanushek, E. (1971). *Teacher Characteristics and Gains in Student Achievement: Estimation Using Micro Data*: American Economic Review.
- Hanushek, E., & Rivkin, S. (2003). *How to Improve Supply of High Quality Teachers*. Brookings Papers on Education Policy 2004
- Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (1999). *Do Higher Salaries Buy Better Teachers?* Working paper 7062. Cambridge, MA: National Bureau of Economic Research.
- Hawk, P. P., Coble, C. R., & Swanson, M. (1985). Certification: It Does Matter. *Journal of Teacher Education*, 36(3), 13-15.
- Heather G. Peske, H., K. (2006). *Teaching Inequality: How Poor and Minority Students Are Shortchanged on Teacher Quality*: The Education Trust.
- Jerald, C. D. (2002). *All Talk, No Action: Putting an End to Out-of-Field Teaching*: The Education Trust
- Jordan, H. R., Mendro, R. L., & Weersinghe, D. (1997). *Teacher Effects on Longitudinal Student Achievement: A Preliminary Report on Research on Teacher Effectiveness* Paper presented at the National Evaluation Institute, Indianapolis, IN. Kalamazoo, MI.

- Kelley, C., Heneman, H., III, & Milanowski, A. (2002). Teacher Motivation and School-Based Performance Awards. *Educational Administration Quarterly*, 38(3), 372.
- Klitgaard, R., & Hall, G. (1974). Are There Unusually Effective Schools? *Journal of Human Resources*, 74, 90-106.
- Konanc, M. E., & North Carolina State Dept. of Public Instruction, (1996). *Teacher Attrition 1980-1996*. Statistical Notes No. 002.
- Liao, Y.-K. (1992). Effects of Computer-assisted Instruction on Cognitive Outcomes: A Meta-analysis. *Journal of Research on Computing in Education*, 24(3), 367.
- Lou, Y. (2004). Understanding Process and Affective Factors in Small Group versus Individual Learning. *Journal of Educational Computing Research*, 31(4), 337-369.
- Monk, D. H. (1994). Subject Area Preparation of Secondary Mathematics and Science Teachers and Student Achievement. *Economics of Education Review*, 13(2), 125.
- Monk, D. H., & King, J. A. (1994). Multilevel Teacher Resource Effects on Pupil Performance in Secondary Mathematics and Science: The Case of Teacher Subject-Matter Preparation. In *Choices and Consequences: Contemporary Policy Issues in Education*. (pp. 29): Ithaca: ILR Press.
- Murnane, R. J., & Olsen, R. J. (1989). The Effects of Salaries and Opportunity Costs on Duration in Teaching: Evidence from Michigan. *The Review of Economics and Statistics*, 71(2).
- Murnane, R. J. (1985). *Do Effective Teachers Have Common Characteristics: Interpreting the Quantitative Research Evidence*. Paper presented at the National Research Council Conference on Teacher Quality in Science and Mathematics.
- Murnane, R. J., & Phillips, B. R. (1981). Learning by Doing, Vintage, and Selection: Three Pieces of the Puzzle Relating Teaching Experience and Teaching Performance. *Economics of Education Review*, 1(4), 453.
- NC Justice Center. (2005). from <http://www.ncjustice.org/>
- Nye, B. A., Hedges, L. V., & Konstantopoulos, S. (2000). Do the Disadvantaged Benefit More from Small Classes? Evidence from the Tennessee Class Size Experiment. *American Journal of Education*, 109 (Nov), 1.
- Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, Schools, and Academic Achievement. *Econometrica*, 73(2), 417.
- Peske, H. G., & Haycock, K. (2006). Teaching Inequality: How Poor and Minority Students Are Shortchanged on Teacher Quality. *The Education Trust*, June.

- Rolstad, K., Mahoney, K., & Glass, G. V. (2005). The Big Picture: A Meta-Analysis of Program Effectiveness Research on English Language Learners. *Educational Policy*, 19(4), 572.
- Rosenholtz, S. J. (1986). Career Ladders and Merit Pay: Capricious Fads or Fundamental Reforms? *Elementary School Journal*, 86(4), 513.
- Sanders, W. L. & Rivers, J.C. (1996). Cumulative and Residual Effects of Teachers on Future Student Academic. *University of Tennessee Value-Added*, from <http://www.heartland.org/pdf/21803a.pdf>
- Shulman, L. S. (1987). Knowledge and Teaching: Foundations of the New Reform. *Harvard Educational Review*, 57, 1-22.
- Singer, R. M. a. J. (1989). The Influence of Salaries and Opportunity Costs on Teachers' Career choices: Evidence from North Carolina. *Harvard Educational Review*
- Strauss, R., & Vogt, W. (2001). *It's What You Know, Not How You Learned to Teach It: Evidence from a study of the effects of knowledge and pedagogy on student achievement*. Paper presented at the American Educational Finance Association, Cincinnati.
- Wasik, B. A., & Slavin, R. E. (1993). Preventing Early Reading Failure with One-to-One Tutoring: A Review of Five Programs. *Reading Research Quarterly*, 28(2), 178.
- Wright, S. P., Horn, S. P. & Sanders, W. L. (1997). Teacher and Classroom Context Effects on Student Achievement: Implications for Teacher Evaluation. *Journal of Personnel Evaluation in Education*, 11(1), 57-67.