

**Improving Teacher Quality in the DSSF Pilot Districts:
A Comparison of Progress from 2004-05 to 2005-06**

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Gary T. Henry

University of North Carolina at
Chapel Hill

Dana K. Rickman

Georgia State University

C. Kevin Fortner

University of North Carolina at
Chapel Hill

Charles L. Thompson

East Carolina University

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Improving Teacher Quality in the DSSF Pilot Districts: A Comparison of Progress from 2004-05 to 2005-06

Improving teacher quality, especially for academically disadvantaged students, is a primary objective of the Disadvantaged Student Supplemental Fund (DSSF). Ultimately, the goal of the DSSF is to increase achievement, decrease drop-outs, and improve other educational outcomes for students, especially those who have not met expected levels of proficiency. Improving access to higher quality teachers is the principal way that the districts have chosen to spend their additional funds in pursuit of the ultimate goal of improving student outcomes.

Teacher quality for academically disadvantaged students can be improved by retaining and/or hiring higher quality teachers or assigning more of the higher quality teachers to teach these students. The 16 DSSF pilot districts employed several strategies that could contribute to the improvement of teacher quality, including increasing salary supplements for teachers, providing signing bonuses, or providing other incentives. Later this year, we will report on the DSSF pilot program's effects on student achievement, but in this update we examine the changes in overall teacher quality in the DSSF pilot districts. We also examine the change in the access of academically disadvantaged students to higher quality teachers.

In this report, we present the teacher quality indicators for the 2005-06 academic year, the second year that the pilot districts received DSSF funding and the first year that improvements in teacher quality could be expected. Rather than provide an exhaustive description of the study findings in narrative form, we will update the findings of our previous study (Henry, Thompson, Rickman, Fortner, & Dean, 2007). Within this report we highlight the findings from the second year of the DSSF pilot by including tables that display the relevant data for DSSF pilot districts and the rest of North Carolina school districts.

Highlights of Findings Concerning Teacher Quality in the DSSF Pilot Districts

Major findings related to teacher quality in 2005-06 are divided into six sections: (1) overall teacher quality in 2005-06; (2) overall changes in teacher quality in the DSSF districts and the remainder of the state from 2004-05 through 2005-06; (3) access to higher quality teachers in the DSSF high schools in 2005-06; (4) access to higher quality teachers in the DSSF middle schools; (5) access to higher quality teachers in the DSSF elementary schools; and (6) comparisons of teacher compensation in the DSSF districts and neighboring districts.

1. Overall Teacher Quality in DSSF Pilot Districts and Remainder of State

1. For all of the 10 indicators of teacher quality in both 2004-05 and 2005-06, the DSSF districts had lower overall quality than the remainder of the state. At every level of schooling -- high, middle and elementary -- students in the DSSF districts continued to have less access to high quality teachers than other students in North Carolina. See Tables 1 and 2 for detailed information on the teacher quality indicators for the DSSF pilot districts and the rest of the state.

2. From 2004-05 to 2005-06, the DSSF districts were able to enhance the quality of their teaching force on some of the indicators of teacher quality. DSSF districts were able to increase the percentage of teachers who had at least a Master's degree, National Board Certification, and more than three years of teaching experience. The districts also reduced the percentage of first year teachers as well as teacher turnover at the district level.
3. In contrast to these improvements, the DSSF districts lost ground in several categories of teacher quality. These districts had a 2.46 percentage point increase in lateral entry teachers in 2005-06. In addition, the DSSF districts experienced a decrease in the percentage of teachers who graduated from at least a very competitive college or university, which has been associated with higher student outcomes in previous research.
4. Approximately 19% of teachers left the DSSF districts between 2004-05 and 2005-06. Teachers left schools within these districts at a still higher rate of 28%. Both of these were approximately 5 percentage points higher than other districts in the state.

Overall, the DSSF pilot districts had lower levels of teacher quality than the rest of the state in 2005-06. Additionally, disadvantaged students in the DSSF districts were much less likely to have access to higher quality teachers than both disadvantaged students in other districts and academically proficient students in the DSSF districts. On the whole, the DSSF districts were able to make only slight improvements in 2005-06 over 2004-05.

Access to Higher Quality Teachers in High School Core Courses 2005-06

1. At the high school level, DSSF districts lost ground between 2004-05 and 2005-06 in several areas of teacher quality. These districts saw a 2.1 percentage point decrease in teachers with at least a Master's degree, a five percentage point drop in teachers with a continuing license, and a 1.1 percentage point drop in teachers with National Board Certification.
2. On the other hand, compared with academically disadvantaged students in DSSF districts in 2004-05, in 2005-06 academically disadvantaged high school students in DSSF districts were more likely to be exposed to teachers who had graduated from at least a very competitive college or university, teachers teaching in the field in which they were certified, and teachers with more than three years of teaching experience.
3. Academically disadvantaged high school students in non-DSSF districts were more than twice as likely to be exposed to a teacher with National Board Certification in 2005-06, compared to.

Overall, in 2005-06 teacher quality at the high school level in the DSSF districts fell further below the already low 2004-05 level, and the gap between DSSF and non-DSSF increased across most measures. While academically disadvantaged high school students in DSSF districts saw slight gains in exposure to higher quality teachers, the improvements were small and did not substantially reduce the large, existing gaps.

Access to Higher Quality Teachers in Middle School Math and Language Arts Classes 2005-06

1. From 2004-05 to 2005-06, DSSF pilot district middle schools made modest increases in the percentage of students exposed to teachers who had at least a Master's degree (0.4 percentage points), who had National Board Certification (1.3 percentage points), who were certified in the field in which they were teaching (3.2 percentage points), and who had more than three years of teaching experience (12.6 percentage points). See Tables 7 – 10 for detailed information on the teacher quality indicators for middle schools in the DSSF pilot districts and the rest of the state.
2. Yet even in these areas in which DSSF districts made gains, the non-DSSF districts were able to exceed these gains. As a result, the gap in access to higher quality teachers between DSSF and non-DSSF districts expanded in 2005-06. This trend was consistent across all indicators in which DSSF districts made gains between 2004-05 and 2005-06.
3. For most indicators in which the DSSF districts made gains, the districts reduced disparities by allocating more highly qualified teachers to academically disadvantaged students. For example, proficient students in DSSF districts were 1.04 times more likely to have a certified, in-field teacher in 2005-06 compared to 2004-05, while academically disadvantaged students in DSSF districts were 1.09 times more likely to have a certified, in-field teacher.
4. It appears that the DSSF pilot districts may be using class size reduction strategies in middle school math and science courses for both proficient and academically disadvantaged students. Class size reduction has not been shown to be effective in improving student outcomes except in early elementary grades (K-3).

Overall, in 2005-06 teacher quality in DSSF middle schools improved over the previous year, and these districts appeared to be assigning more highly qualified teachers to academically disadvantaged students. Yet non-DSSF districts made greater improvements, and therefore the teacher quality gaps between DSSF and non-DSSF districts worsened.

Access to Higher Quality Teachers in Elementary School Math and Language Arts/Reading Classes 2005-06

1. From 2004-05 to 2005-06, DSSF pilot district elementary schools made modest increases in the percentage of students exposed to teachers who had at least a Master's degree (2.1 percentage points), who had a bachelors degree from at least a very competitive institution (1.3 percentage points), and who had National Board Certification (0.3 percentage points). See Tables 11-14 for more detailed information on elementary school teacher quality indicators in the pilot DSSF districts and the rest of the state.
2. On the downside, during the same period, DSSF elementary schools saw a slight increase in the percentage of teachers with a temporary, provisional, or emergency license (1.8 percentage points), lateral entry teachers (0.7 percentage points), and first year teachers (1.1 percentage points).
3. One indicator on which the pilot DSSF districts showed an advantage was in certified, in-field teachers for elementary language arts and mathematics classes. On average in

DSSF elementary schools, 87% of the students had access to a certified teacher who was teaching in field compared to 84% in the non-DSSF districts in 2005-06. For other indicators of teacher quality, the gaps between DSSF districts and the rest of the state were much smaller in elementary schools than in middle or high schools.

4. Compared with 2004-05, in 2005-06 academically disadvantaged students in DSSF pilot district elementary schools were more likely to be taught by teachers who had Master's degrees and who had received a bachelor's degrees from at least a very competitive academic institution.

Overall, the gaps between the DSSF pilot districts and other districts in the state were the smallest in elementary schools. Moreover, the gaps in quality of teachers were the smallest between academically disadvantaged and proficient students at the elementary school level. In 2005-06 progress in some DSSF elementary teacher quality indicators was offset by deterioration in other areas.

Teachers' Salaries in DSSF and Neighboring Districts: 2003-04 through 2005-06

1. DSSF funds allocated by districts to improve teachers' compensation were used primarily for supplements. In 2004-05, the first year of DSSF funding, all but one district used some DSSF funds for teacher bonuses, and about 26% of all bonuses awarded by these districts were underwritten by DSSF funds. Three districts funded nearly half of their teacher bonuses with DSSF.
2. In 2005-06, the number of districts using DSSF funds for teacher salary supplements fell from 15 to 10.
3. Between 2003-04 and 2005-06, DSSF districts were, on average, able to reduce the teacher salary gap with other NC districts by nearly \$400. In 2004-05, the DSSF pilot districts cut the pay gap with neighboring districts by half (from \$1,025 to \$449 on average), but in 2005-06 the pay gap edged back up to \$527 on average.

The DSSF districts cut the teacher pay gap with neighboring districts substantially in the first year of the program. However in the second year, the average gap between these districts and their neighbors increased by about 15%. The resurgent average gap reflected the decision by five districts to stop using DSSF funds for supplements.

Brief Summary of the Teacher Quality Update and Next Steps for the DSSF Evaluation

In sum, the DSSF districts appear to have made some progress in improving teacher quality and improving teachers' salaries in the first two years of the program. However, the progress of these districts has been largely offset by progress in other districts and, in the case of salaries, decisions not to use the DSSF funding or other sources of funds to raise salaries. In the 2006-07 academic year the DSSF program was extended statewide. The original 16 pilot districts have maintained their funding levels while other districts have been funded on the basis of the percentage of disadvantaged students in those districts. We will continue to monitor teacher quality both in the pilot districts and for academically disadvantaged students throughout the state.

In 2008, we will release reports on the impacts of DSSF on student performance. Beginning with high school student performance, we will examine the impacts of DSSF participation on End-of-Course performance during the program's first two years. We will also look at the impacts of expenditures and teacher quality. Middle school and elementary school outcomes will follow. In addition, we will compare principal leadership, organizational characteristics, and content coverage in middle schools located within the original 16 DSSF districts with similar middle schools in other districts to gain a better understanding of the effects of these factors on student performance in grades 6-8.

Data and Methods

2004-05 and 2005-06 Overall Teacher Quality

The overall teacher quality data were provided by the North Carolina Department of Public Instruction (DPI) from administrative records. The 2004-05 and 2005-06 data from DPI include information on teacher quality in DSSF districts as well as teacher quality in the other districts in North Carolina. The DPI data measure many of the teacher quality variables that research suggests are important. Taken as a whole, the data give us a reasonable set of indicators of teacher quality, both in the DSSF districts and statewide.

For this report, we compare the quality of teachers in DSSF districts in 2005-06 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", "highly competitive", or "most competitive" institution of higher education¹, an indirect measure of their general academic proficiency; (b) the percentage of teachers with Master's degrees; (c) the general academic ability of teachers using the teacher's average score on teacher preparation exams such as the PRAXIS, NTE, or GRE; (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 calculated teacher turnover at the district level, ie: the percentage of teachers leaving the district and at the individual school level. Calculating the turnover rates at each school is important to understand the extent to which teacher continuity is a problem.

The 2005-06 data are then compared to the 2004-05 data on the same measures to gauge change between the two years. In the tables and text below, we present the data that show change from one year to the next in ratios to show increases (greater than 1.00) and decreases (less than 1.00) at a glance.

Exposure to High Quality Teachers

To assess the exposure to quality across high school, middle school, and elementary school we use a measure that is more precisely focused on the quality of the teachers who most directly shape the End-of-Course (EOC) test outcomes at the high school level and End-of-Grade (EOG) test outcomes at the middle school and elementary school levels. By carefully combining several sources 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 not only to contrast the quality of teachers teaching tested subjects across DSSF districts and other districts, but also 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

¹ These rankings are based on institutional rankings provided by *Barron's Guide to the Most Competitive Colleges* (2005). Barron's ranks degree granting institutions on a scale from 1 (not competitive) to 6 (most competitive). Rankings are primarily based on acceptance rates and college entrance examination scores. For this variable, we have collapsed the top three rankings (very competitive, highly competitive, and most competitive) into "at least very competitive."

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 in grades with an EOG exam or in EOC-tested subjects was taught by teachers with certain characteristics. For example, at the high school level we were able to determine how much of the average school day a 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 NBC teachers for two periods out of three EOC courses per day, this would represent an exposure-to-NBCTs rate of about 67%. If a student were taught EOC-tested subjects by an NBCT for one period out of three EOC courses per day, that would represent a rate of exposure to NBCTs of about 33%. When aggregated to the district level, these exposure indices reflect the proportion of time a student in an EOC-tested course had a teacher with the stated characteristic. In the case of a teacher’s general academic ability, the measure reflects the average ability level of teachers teaching EOC courses weighted by student exposures.

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 students’ prior year status on ABC exams (proficient or academically disadvantaged). We display data that permit comparison of academically disadvantaged students’ exposure to high quality teachers in DSSF districts with: (1) proficient students’ exposure to high quality teachers within the DSSF districts; (2) academically disadvantaged students’ exposure to high quality teachers in non-DSSF districts; and (3) proficient students’ exposure to high quality teachers in non-DSSF districts. We use the ratio of the three groups described above to the academically disadvantaged students in the DSSF districts to show the extent to which these groups are more (greater than 1.0) or less likely (less than 1.0) to have access to teachers with specific characteristics.

Teacher Pay

Finally, data was used to compare DSSF districts with their closest (contiguous) non-DSSF neighbors in order to assess their competitiveness in terms of teacher salary. This data was provided by expenditure files from DPI for 2004-05 and 2005-06. A teacher’s regular pay included all the expenditures made from purpose codes 5100, 5200, 5500 and object codes 121, 123, 125, 126, 128, and 129. Any individual who received a payment from any of these purpose and object codes was considered a teacher. The 2004 NC Chart of Account’s definitions of the object codes are described below.

<u>Expenditure Object Code</u>	<u>NC Chart of Accounts 2004 Description</u>
121 – Teacher	Include the salary of the person assigned to instruct pupils not classified elsewhere: (i.e., academic instruction, vocational education, library/media specialist, and guidance services).
123 - Teacher – Other	Include the salary of the person assigned to teach ROTC, the salary of the person assigned as lead teacher in the summer school program, and/or other state designated purposes. This special designation is required to permit proper identification for salary assignment purposes by DPI.
125 - New Teacher Orientation	Include the salary of the person attending assigned new teacher orientation, outside of the teacher’s contract calendar, not to exceed three days.
126 - Extended Contract Days	Include pay to teachers at designated schools for additional contract days beyond the school year.
127 - Interim Teacher – Non-certified	An interim employee may be employed when a vacancy in a teaching position occurs. Include the salary of a person being paid at a noncertified rate (substitute pay rate). The interim employee is not licensed in the area of assignment. (See State Salary Manual, Section D.II.O.)
128 - Retired Teacher – Exempt from the Earnings Cap	Include the salary of retired teachers who have not been employed "in any capacity with a public school, except as a substitute teacher, for at least 6 months immediately preceding the effective date of reemployment". They shall not be subject to the computation of post retirement earnings (earning cap). (See Benefits Manual, Section 16.)
129 Other Professional Educator Assignments	Include the salary of the person(s) assigned to perform professional educator activities, which include but are not limited to, Visiting International Faculty (VIF) and Vocational Competency Achievement Tracking System (VoCats).

Supplementary Pay

If an individual was identified to be a teacher, their supplementary pay was obtained by adding any additional payment received under object codes 181, 183, 184, and 187. The 2004 NC Chart of Account’s definitions of these object codes are described below.

<u>Expenditure Object Code</u>	<u>NC Chart of Accounts 2004 Description</u>
181 - Supplementary Pay	Include supplements paid to employees from local, federal, and/or certain State funds that are determined to be amounts in addition to salary paid for the individual.
183 - Bonus Pay	Include legislated bonus payments made to eligible employees.
184 - Full-Time Substitute	Salary of the person employed for at least 30 hours per week, and who is expected to be employed full-time for at least six (6) consecutive months as a substitute for a teacher, who is on paid leave.
187 - Salary Differential	Include the salary differential amount paid to employees from local, federal and/or certain State funds that are determined to be a part of the salary paid for the individual. Examples: (1) ROTC differential – paid in addition to the State certified salary; (2) Military differential (PRC 021) – paid to active duty military the difference between the State salary and the active duty pay.

Overall Teacher Quality Indicators for 2004-05 and 2005-06: DSSF Districts and State Averages

2005-06 Teacher Quality

For the 2005-06 school year, the 16 DSSF pilot districts continued, on average, to lag behind the rest of the state on all 11 measures of teacher quality (Table 1). However, some individual DSSF districts did outperform the average for the rest of the state on some measures of teacher quality. For example, one district outperformed the rest-of-state averages on eight of the 11 teacher quality measures, including the percentage of teachers with at least a Master's degree; the percentage of teachers who attended a highly or very competitive institution for their bachelors degree; the percentage of teachers with a continuing license; the percentage of teachers who had a provisional, emergency, or temporary license or were lateral entry teachers (lower percentage is better); the percentage of National Board Certified teachers (NBCT); the percentage of teachers with more than three years of teaching experience; and the average school turnover. DSSF districts fared the best on average compared to the rest of the state in the indicator of teachers with more than three years of teaching experience. In seven districts more than 87% of the teachers had more than three years experience. However, in four of these districts the percentage of the teaching staff that had a continuing license was lower than the state average (78%). The DSSF districts fared the worst compared to the rest of the state in the area of teachers' test scores. None of the 16 districts was able to at least match the rest-of-state average measure of teachers' general academic ability.

**Table 1:
2005-06 Teacher Quality by DSSF District and Compared to Rest of the State (N= 99,955)**

	% At least a Master's degree	%At least very competitive bachelors	General academic ability	% Continuing license	% Provisional/emergency/temporary license	% Lateral entry	% National Board Certified	% First year teachers	% More than 3 years of teaching exp.	District turnover*	School turnover*
Rest of NC	31.77	9.65	0.0004	78.67	7.61	5.58	9.70	6.99	87.07	15.0%	23.4%
All 16 DSSF Districts	26.54	7.12	-0.32	74.94	10.95	9.68	5.30	8.40	84.72	18.5%	28.3%
Edgecombe	23.26	6.19	-0.15	74.48	8.81	9.94	7.87	9.94	81.05	21.4%	27.2%
Elizabeth City/Pasquotank	27.77	4.91	-0.31	81.83	11.32	6.19	7.47	5.98	88.46	18.2%	29.8%
Franklin	21.36	18.29	-0.04	71.11	9.57	11.28	3.07	8.88	82.73	20.5%	26.4%
Halifax	24.38	3.56	-0.83	76.71	14.24	14.24	4.65	3.83	87.12	14.3%	32.5%
Hertford	21.93	4.08	-0.66	77.69	14.12	7.43	3.71	5.94	88.84	16.5%	18.3%
Hoke	24.29	2.63	-0.38	68.01	10.12	8.29	1.47	11.53	79.55	26.0%	32.1%
Hyde	25.92	8.64	-0.10	74.07	18.51	3.70	6.17	14.81	81.48	23.3%	28.9%
Lexington City	25.40	6.45	-0.03	75.80	9.67	7.66	7.25	8.06	89.11	21.0%	24.6%
Montgomery	35.36	11.21	-0.01	86.09	7.19	5.00	10.36	4.14	92.56	16.2%	20.7%
Northhampton	19.74	5.88	-0.56	68.06	20.58	16.38	1.26	7.56	84.87	19.9%	36.4%
Robeson	29.18	2.76	-0.51	77.83	8.16	8.04	4.20	7.68	85.88	14.6%	27.9%
Thomasville City	27.58	6.89	-0.16	60.59	10.83	10.34	6.40	17.24	75.36	22.7%	49.2%
Vance	22.50	12.86	-0.23	64.14	18.48	15.91	5.46	14.46	75.08	22.8%	29.9%
Warren	25.90	9.54	-0.35	66.36	10.90	18.18	5.00	10.45	81.36	17.0%	25.2%
Washington	27.65	7.44	-0.39	84.04	4.78	4.78	3.19	4.78	89.89	12.7%	16.2%
Weldon City	25.00	6.52	-0.77	59.78	30.43	22.82	2.17	7.60	89.13	33.0%	39.6%

*Turnover data is from teacher salary files only: N = 109,527

2004-05 to 2005-06 Change in Teacher Quality

In Table 2 on the following page, we express all students' rates of exposure to high quality teachers in 2005-06 as a percentage of DSSF students' rate of exposure in 2004-05. For example, in 2005-06 DSSF students were slightly more likely to be taught by teachers with at least a Master's degree than they were in 2004-05. More precisely, their 2005-06 exposure rate was 1.03 times the exposure rate in 2004-05.

Note that we compare the 2005-06 exposure rates for students in other NC districts not to the 2004-05 exposure rates in that set of districts (that is, non-DSSF districts), but also to the 2004-05 exposure rates in DSSF districts. This comparison is designed to enable the reader to make a direct comparison between the exposure to high quality teachers that students in non-DSSF districts received in 2005-06 and the exposure that DSSF students received.

For example, in 2005-06 DSSF students received 1.03 times their 2004-05 rate of access to Master's-or-better teachers and in that same year, non-DSSF students also had access to 1.03 times the 2004-05 rate for DSSF students (Table 2). This means that DSSF and non-DSSF teachers had the same rate of access to Master's-or-better teachers.

From 2004-05 to 2005-06, on average, DSSF districts were able to improve teacher quality on six of the 10 teacher quality variables. In 2005-06, the percentage of teachers with a continuing license was 1.02 times the 2004-05 percentage, and the percentage of NBCTs was 1.44 times the 2004-05 percentage. However, in 2005-06, the percentage of lateral entry teachers was 2.46 times the percentage for 2004-05, and the percentage of provisional, emergency and temporary license holders rose to 1.10 times the figure for 2004-05. Of the 16 districts, eight had over three times the percentage of lateral entry teachers in 2005-06 that they had the year before.

Table 2: Rates of Exposure to Teacher Quality in 2005-06 Expressed as a Percentage of the Rates of Exposure in DSSF Districts in 2004-05

	% At least a Master's degree	%At least very competitive bachelors	% Continuing license	% Provisional/emergency/temporary license	% Lateral entry	% National Board Certified	% First year teachers	% More than 3 years of teaching exp.	District turnover	School turnover
Rest of NC	1.03	1.01	1.00	1.36	3.02	1.33	0.94	1.15	1.00	0.99
All 16 DSSF Districts	1.03	0.98	1.02	1.10	2.46	1.44	0.83	1.16	0.95	1.01
Edgecombe	0.95	1.22	0.97	1.02	5.88	1.35	0.72	1.13	0.88	0.95
Elizabeth City/Pasquotank	1.04	1.25	1.07	1.10	4.73	1.27	0.78	1.15	0.98	1.12
Franklin	1.01	0.98	1.02	0.82	1.93	2.24	0.71	1.20	1.04	0.86
Halifax	1.07	0.85	1.06	0.99	1.95	1.62	0.31	1.19	0.59	0.87
Hertford	1.11	0.89	1.04	1.42	1.50	1.95	0.78	1.16	0.71	0.57
Hoke	1.03	1.03	1.00	1.06	3.25	0.99	1.08	1.17	1.05	1.07
Hyde	1.12	0.89	1.12	1.17	3.70	1.69	1.35	1.13	1.21	1.09
Lexington City	1.05	0.97	1.00	1.13	4.91	1.43	1.29	1.25	1.08	0.90
Montgomery	1.06	0.99	1.02	1.22	4.72	1.73	0.77	1.13	1.14	1.05
Northhampton	0.96	0.95	1.00	1.19	2.83	0.61	0.65	1.13	0.74	1.06
Robeson	1.03	1.03	1.03	1.23	3.01	1.23	0.90	1.17	1.03	1.12
Thomasville City	0.98	1.10	0.92	1.32	2.14	1.11	1.55	1.06	1.02	1.36
Vance	0.97	0.92	1.05	1.09	1.69	1.77	0.83	1.19	1.03	0.92
Warren	0.97	1.12	1.03	0.73	1.68	1.59	0.93	1.17	0.74	1.00
Washington	1.18	1.02	1.01	1.15	4.60	1.53	0.57	1.15	0.86	0.94
Weldon City	1.13	1.12	0.99	1.45	1.96	1.87	6.55	1.11	1.06	1.02

**Access to High School Teachers by Indicator of Quality for 2004-05 and 2005-06:
Overall and Academically Disadvantaged Students**

Overall Exposure to Quality – 2005-06 High School Students

In the 2005-06 school year, high school students in DSSF districts had lower levels of exposure to high quality teachers than did students in the rest of the state (Table 3). For example, high school students in DSSF districts were exposed to a certified, in-field teacher for 68% of their day in EOC-tested courses, while high school students in non-DSSF schools had a certified, in-field teacher for nearly 83% of the day in EOC-tested courses. In the largest contrast among districts, students in one DSSF district were exposed to a certified, in-field teacher for 91% of the day in EOC-tested courses compared to another DSSF district in which students were exposed to certified, in-field teachers for only about a third of the day in EOC-tested courses.

Table 3: Exposure of High School Students to Teachers with Listed Characteristic in 2005-06

High School	Education		Licensing					Experience		Class Size
	% At least a Master's degree	% At least very competitive bachelors	% Continuing license	% Provisional/emergency/temp. license	% Lateral entry	% National Board Certified	% Certified, in-field teaching	% First year teachers	% More than 3 years teaching experience	Average class size
Rest of NC	32.9	20.4	77.3	8.6	3.4	12.9	82.9	7.3	86.0	22
All 16 DSSF Districts	26.5	17.5	69.1	14.8	8.3	5.5	67.7	10.7	80.3	20
Edgecombe	41.7	18.5	87.6	5.5	2.3	20.2	79.3	4.2	91.6	21
Elizabeth City/Pasquotank	8.0	25.7	39.1	43.3	14.5	0.0	37.5	17.8	54.0	18
Franklin	20.6	14.5	80.4	5.8	2.5	10.8	76.8	10.2	86.2	22
Halifax	31.6	42.4	59.1	11.5	14.0	2.6	68.6	15.1	75.5	20
Hertford	32.4	30.7	52.6	37.9	12.6	6.0	36.8	6.3	60.2	21
Hoke	7.8	0.0	66.8	33.2	1.2	0.0	59.6	4.8	95.2	20
Hyde	17.2	0.0	64.3	21.6	5.5	0.0	49.0	6.4	78.6	20
Lexington City	18.6	7.5	100.0	0.0	0.0	13.2	91.0	0.0	100.0	12
Montgomery	5.7	7.1	19.1	40.8	18.6	0.0	33.0	26.9	64.1	20
Northhampton	39.2	19.3	80.7	9.8	3.6	13.1	89.7	8.6	88.5	23
Robeson	28.2	5.8	76.8	5.4	7.8	2.7	69.6	8.6	86.1	19
Thomasville City	16.2	5.5	70.2	19.2	0.0	7.2	82.3	24.5	73.8	19
Vance	22.4	33.8	58.3	16.0	22.7	1.9	58.6	15.3	65.7	21
Warren	14.0	38.0	52.6	27.2	9.3	0.0	59.9	16.3	66.1	19
Washington	32.5	28.6	93.4	1.9	1.9	0.0	85.4	0.0	95.3	18
Weldon City	16.9	0.0	71.1	28.9	0.0	0.0	71.1	19.1	80.9	18

2004-05 to 2005-06 Change in Teacher Quality for High School Students

To assess progress, we compared exposure rates for EOC-tested high school courses in the DSSF pilot districts during 2004-05 to those in 2005-06. Overall, from 2004-05 to 2005-06, high school students in DSSF districts saw a decrease in exposure to teachers who had at least a Master's degree, who held a continuing license, who were NBCTs, or who were teaching in their field of certification (Table 4). Moreover, during 2005-06 DSSF students were 1.06 times more likely to be taught by a teacher with a provisional, emergency, or temporary license than in 2004-05. They were also 1.80 times more likely to be exposed to a lateral entry teacher than in the previous year. DSSF districts did achieve gains for high school students in terms of reduced class size and the proportion of students taught by teachers with three or more years of experience.

Table 4: Change Between 2004-05 and 2005-06 in Exposure to Teachers with Certain Characteristics in NC High Schools (2004-05 DSSF district exposure rates used as base)

High School		DSSF Districts
		Ratio of 2005-06 to 2004-05
Education	% At least a Master's degree	0.94
	% At least very competitive bachelors degree	0.99
Licensing	% Continuing license	0.93
	% Provisional/ emergency/ temporary license	1.06
	% Lateral entry	1.80
	% National Board Certified	0.89
	% Certified, in-field teaching	0.98
Experience	% First year teacher	1.03
	% More than three years of teaching experience	1.07
Class Size	Average class size	0.95

Academically Disadvantaged High School Students

As previously stated, the overarching goal of the DSSF pilot program was to improve the learning and performance of students, especially disadvantaged students. Therefore, it is not only average teacher quality that matters, but also the access of academically disadvantaged students to higher quality teachers that is important. To examine the extent to which there was a change in teacher quality for the academically disadvantaged students, we examined the percentage of time academically disadvantaged students had access to teachers of high quality in EOC-tested subjects when compared to their proficient peers in DSSF districts and when compared to students in the rest of the state.

Across eight of the 10 measures of teacher quality, academically disadvantaged students in DSSF districts had lower exposure rates compared both to non-academically disadvantaged students in DSSF districts and to all students in non-DSSF districts (Table 5). For example, academically disadvantaged students in DSSF districts were taught by a certified, in-field teacher 62% of their time in EOC-tested subjects. This compares to 75% for academically disadvantaged students in non-DSSF districts, 78% for proficient students in DSSF districts, and over 87% for proficient students in non-DSSF districts.

Table 5: High School Students’ Exposure to Teachers with Certain Characteristics for Academically Disadvantaged and Proficient Students in 2005-06

High School		Academically Disadvantaged		Proficient	
		Rest of NC	DSSF	Rest of NC	DSSF
Education	% At least a Master’s degree	30.3	23.1	35.3	30.1
	% At least very competitive bachelor’s degree	18.0	19.0	22.8	20.0
Licensing	% Continuing license	71.8	64.8	80.2	74.5
	% Provisional/ emerg./ temporary license	12.7	18.0	8.2	12.8
	% Lateral entry	5.2	8.8	2.6	12.8
	% National Board Certified	8.5	2.5	13.6	7.1
	% Certified, in-field teaching	75.1	62.2	87.8	77.6
Experience	% First year teacher	9.8	11.0	6.4	8.5
	% More than three years of teaching exp.	83.0	77.2	88.5	84.1
Class Size	Average class size	20	19	22	20

When comparing the exposure rates in 2004-05 to 2005-06, in the latter year academically disadvantaged students in DSSF districts were 1.49 times more likely to be taught by a lateral entry teacher as in the previous year (Table 6). However, academically disadvantaged students in DSSF districts were more likely in 2005-06 than in 2004-05 to be exposed to a teacher who had at least a very competitive bachelor’s degree, was a certified, in-field teacher, or who had more than three years of teaching experience.

A comparison of disadvantaged students in DSSF districts in 2004-05 to non-DSSF districts in 2004-05 and 2005-06 reveals gaps in exposure to higher teacher quality across all measures (Table 6). In 2004-05, academically disadvantaged students in non-DSSF districts were nearly twice as likely (1.97) to be exposed to a Nationally Board Certified Teacher (NBCT) than their DSSF counterparts. In 2005-06, that likelihood increased to 2.43 times more likely than their DSSF counterparts in 2004-05. This compares to disadvantaged students in DSSF districts who were less likely (0.71) to be exposed to a NBCT in 2005-06 than in 2004-05. However, in terms

of licensing, the gap slightly decreased. In 2004-05, academically disadvantaged students in non-DSSF districts were half (0.55) as likely to be exposed to a lateral entry teacher as their DSSF counterparts. In 2005-06, that likelihood increased to 0.72 times as likely as their DSSF counterparts in 2004-05. Overall, academically disadvantaged students in DSSF districts attending high school were less likely to be exposed to higher quality teachers than academically disadvantaged non-DSSF students and all academically proficient students across the state. Slight gains were made between 2004-05 and 2005-06 on some measures, but the resulting effects were small and could not compensate for the large gap that already existed on most measures.

Table 6: Ratio of Change in Exposure to Teachers with Certain Characteristics for Academically Disadvantaged and Proficient High School Students Between 2004-05 and 2005-06 (2004-05 DSSF district exposure represents the base)

High School		Academically Disadvantaged Students			
		Rest of NC		DSSF	
		2004-05	2005-06	2004-05	2005-06
Education	% At least a Master's degree	1.25	1.28	1.00	0.98
	% At least very competitive bachelor's degree	1.07	1.22	1.00	1.28
Licensing	% Continuing license	1.08	1.07	1.00	0.96
	% Provisional/ emergency/ temporary license	0.55	0.72	1.00	1.02
	% Lateral entry	0.75	0.88	1.00	1.49
	% National Board Certified	1.97	2.43	1.00	0.71
	% Certified, in-field teaching	1.13	1.29	1.00	1.07
Experience	% First year teacher	0.70	0.69	1.00	0.77
	% More than three years of teaching experience	1.08	1.21	1.00	1.13
Class Size	Average class size	1.05	1.05	1.00	1.00

We now turn to a discussion of middle school teacher quality exposure.

Access to Middle School Teachers by Indicator of Quality for 2004-05 and 2005-06: Overall and Academically Disadvantaged Students

Overall Exposure to Quality – 2005-06 Middle School Students

In fashion parallel to high student exposure, Table 7 shows the exposure rates of DSSF middle school students to teachers on each of the quality indicators compared to students across the rest of the state. For middle school students, the exposure rate is the percentage of the day that students in core courses (math, reading, science, and social studies) were taught by a teacher with a given characteristic.

In 2005-06, students in DSSF districts had less exposure to higher quality teachers on each of the 11 indicators compared to students in non-DSSF districts. The largest gaps existed in teacher licensing. In the DSSF districts, 68% of the time students were exposed to a teacher with a continuing license, while 77% of student time in non-DSSF districts took place with teachers holding a continuing license. Moreover, nearly 80% of the time students in non-DSSF districts were exposed to a certified, in-field teacher, compared to only 71% of the time for students in a DSSF district. In terms of lateral entry teachers, 23% of the time in core classes DSSF students had a lateral entry teacher, compared to only 11.6% for students in a non-DSSF district.

Similar to the high school results, there was considerable variety among the DSSF districts. For example, middle school students in three districts were more likely to be taught core courses by a certified, in-field teacher than the non-DSSF district average of 80%. However, in three districts, less than half of the students' time was spent with a teacher with a continuing license. In terms of NBCTs, one district had a higher percentage of student time spent with a NBCT than the non-DSSF average; in five DSSF districts, students had no NBCT exposure at all.

Table 7: 2005-06 Exposure to Teachers with Listed Characteristics in NC Middle Schools

	Education		Test	Licensing					Experience		Class Size
Middle School	% At least a Master's degree	% At least very competitive bachelors	General academic ability	% Continuing license	% Provisional/emergency/temp. license	% Lateral entry	% National Board Certified	% Certified, in-field teaching	% First year teachers	% More than 3 years teaching experience	Average class size
Rest of NC	27.9	12.6	0.02	77.1	10.1	11.6	9.6	79.9	7.9	85.4	23
All 16 DSSF Districts	20.0	8.9	-0.40	67.9	16.5	23.2	4.0	71.0	10.5	79.8	22
Edgecombe	16.6	9.1	-0.15	64.2	17.1	29.7	4.8	71.1	12.6	75.7	24
Elizabeth City/Pasquotank	25.6	4.1	-0.50	80.3	18.0	19.1	0.8	69.4	0.0	90.2	21
Franklin	20.6	7.8	-0.50	68.3	21.7	17.4	0.4	73.1	10.8	79.6	21
Halifax	19.8	31.0	0.001	55.0	15.2	23.7	4.4	78.0	11.9	70.9	21
Hertford	14.6	7.0	-1.10	78.2	12.1	25.3	5.6	78.2	0.6	93.9	20
Hoke	23.6	1.4	-0.72	59.5	22.5	26.7	0.0	60.3	6.9	77.1	20
Hyde	16.8	2.9	-0.40	67.3	12.1	17.6	1.0	77.4	9.7	81.8	24
Lexington City	14.2	0.0	0.22	48.3	51.1	18.8	0.0	68.8	29.1	67.1	15
Montgomery	20.2	12.1	0.18	70.7	6.9	15.4	6.3	81.6	11.0	85.9	19
Northhampton	28.4	16.9	0.07	81.5	11.9	12.2	11.5	82.5	7.3	88.3	24
Robeson	18.5	2.0	-0.64	75.5	11.5	20.7	4.0	76.1	7.6	84.6	23
Thomasville City	22.4	6.3	-0.34	57.9	6.3	8.8	6.1	70.5	15.6	79.7	22
Vance	17.5	20.6	-0.07	41.9	32.2	43.3	3.4	40.7	26.0	56.2	22
Warren	23.1	11.5	-0.21	53.5	24.4	35.4	0.0	54.3	17.6	67.8	20
Washington	17.9	15.2	-0.61	79.7	11.1	10.4	0.0	92.2	8.9	83.3	22
Weldon City	9.7	14.8	-1.23	46.4	47.7	45.3	0.0	52.3	11.6	75.1	18

2004-05 to 2005-06 Changes in Teacher Quality for Middle School Students

A comparison of the exposure rates within the DSSF districts during 2004-05 to those during 2005-06, revealed several areas of improvement. A higher percentage of student exposure took place with teachers who held at least a Master's degree, who had more than three years of teaching experience, who were certified, in-field teachers, or who were NBCTs in 2005-06 than in 2004-05 (Table 8). However, a higher percentage of student time was spent with teachers who were lateral entry teachers or who had a provisional, emergency, or temporary license in the second year. For example, middle school students' exposure in DSSF districts to lateral entry teachers was three and a half times higher in 2005-06 than in 2004-05.

Table 8: Change Between 2004-05 and 2005-06 in Exposure to Teachers with Certain Characteristics in NC Middle Schools (2004-05 DSSF district exposure rates used as base)

Middle School		DSSF Districts
		Ratio of 2005-06 to 2004-05
Education	% At least a Master's degree	1.02
	% At least very competitive bachelor's degree	0.81
Licensing	% Continuing license	0.98
	% Provisional/ emerg./ temporary license	1.24
	% Lateral entry	3.57
	% National Board Certified	1.48
	% Certified, in-field teaching	1.05
Experience	% First year teacher	0.87
	% More than three years of teaching experience	1.19
Class Size	Average class size	0.96

Academically Disadvantaged Middle School Students

Now we turn to an examination of exposure to teacher quality among academically disadvantaged middle school students. Across nine of the 10 measures of quality, academically disadvantaged middle school students in DSSF districts had worse exposure rates than proficient students in DSSF districts and both proficient and academically disadvantaged students in non-DSSF districts (Table 9). Among academically disadvantaged students in DSSF districts, 66.7% of student time was spent with a teacher holding a continuing license, and 69.6% of student time was spent with a certified, in-field teacher. Among academically disadvantaged middle school students in non-DSSF districts, 75% of student time in core courses was spent with a teacher holding a continuing license and 76% of student time was spent with a certified, in-field teacher.

Table 9: Middle School Students' Exposure to Teachers with Certain Characteristics for Academically Disadvantaged and Proficient Students in 2005-06

Middle School		Academically Disadvantaged		Proficient	
		Rest of NC	DSSF	Rest of NC	DSSF
Education	% At least a Master's degree	26.6	20.0	28.8	20.0
	% At least very competitive bachelor's degree	11.2	8.0	14.0	10.6
Licensing	% Continuing license	75.0	66.7	78.8	70.3
	% Provisional/ emerg./ temporary license	11.6	17.0	8.9	15.6
	% Lateral Entry	13.5	24.5	10.1	20.8
	% National Board Certified	7.9	3.5	10.9	4.9
	% Certified, in-field teaching	76.3	69.6	82.8	73.5
Experience	% First year teacher	8.6	10.8	7.3	9.9
	% More than three years of teaching exp.	84.1	79.3	86.4	80.6
Class Size	Average class size	22	22	24	23

Academically disadvantaged middle school students in DSSF districts had a 3.31 times higher exposure rate to lateral entry teachers in 2005-06 than in the previous year (Table 10). However in 2005-06, academically disadvantaged middle school students in DSSF districts spent more time with teachers who had at least a Master's degree, were Nationally Board Certified, were certified, in-field teachers, or who had more than three years of teaching experience than in 2004-05. Similar to the high school indicator analysis, middle school exposure rates within the DSSF districts indicate a small shift in terms of teacher experience towards academically disadvantaged students.

However, also similar to trends in high school, the small changes at the middle school level could not keep up with the increasing gap between DSSF districts and non-DSSF districts. Comparing disadvantaged students in DSSF districts in 2004-05 to non-DSSF districts in both 2004-05 and 2005-06 reveals a gap in exposure to teacher quality across all indicators (Table 10). Academically disadvantaged students in DSSF districts made gains in 2005-06 in terms of the percentage of students' time spent with NBCTs (1.58); however, academically disadvantaged students in non-DSSF districts had nearly four times (3.89) the exposure to NBCTs in 2005-06 compared to an academically disadvantaged student in a DSSF district in 2004-05. Overall, academically disadvantaged students in DSSF districts attending middle school spent less time with teachers with certain characteristics deemed important to teacher quality as compared to their counterparts across the rest of North Carolina.

Table 10: Ratio of Change in Exposure to Teachers with Certain Characteristics for Academically Disadvantaged Middle School Students Between 2004-05 and 2005-06
(2004-05 DSSF District Exposure represents the base)

Middle School		Academically Disadvantaged Students			
		Rest of NC		DSSF	
		2004-05	2005-06	2004-05	2005-06
Education	% At least a Master's degree	1.82	1.39	1.00	1.04
	% At least very competitive bachelor's degree	1.01	1.17	1.00	0.80
Licensing	% Continuing license	1.14	1.13	1.00	0.99
	% Provisional/ emerg./ temporary license	0.50	0.78	1.00	1.11
	% Lateral entry	0.61	1.94	1.00	3.31
	% National Board Certified	2.89	3.89	1.00	1.58
	% Certified, in-field teaching	1.08	1.16	1.00	1.09
Experience	% First year teacher	0.67	0.64	1.00	0.84
	% More than three years of teaching experience	1.10	1.28	1.00	1.20
Class Size	Average class size	0.95	0.91	1.00	0.95

We now turn to a discussion of elementary schools.

Access to Elementary School Teachers by Indicator of Quality for 2004-05 and 2005-06: Overall and Academically Disadvantaged Students

Overall Exposure to Quality – 2005-06 Elementary School Students

In terms of exposure to teacher quality in 2005-06, the sharp contrast between DSSF districts and non-DSSF districts was not as evident at the elementary level as it was in the middle schools and high schools. On average, in elementary schools, a higher percentage of students' time in DSSF districts was spent with a certified, in-field teacher (87%) as compared to non-DSSF districts (84%) (Table 11). The two groups were nearly equivalent in terms of exposure to teachers with more than three years of teaching experience, 87% for both groups; and they both had a similar percentage of student exposure to a teacher with a continuing license, 81% for non-DSSF districts and 80% for DSSF districts. The largest gap for elementary school students was exposure to NBCTs. In DSSF districts, only 4% of student time in core subjects was spent with a teacher with National Board Certification. This compares to 10% in non-DSSF districts.

Akin to middle and high schools, the distribution of teacher quality varies among the DSSF districts. In four DSSF districts, more than 90% of student time was spent with a teacher holding a continuing license. However, less than 70% of student time in five districts was spent with a teacher holding a continuing license, including less than half in two districts. In terms of certified, in-field teaching, six DSSF districts had an exposure rate above 90%. However, three districts had exposure rates of less than 70%, with one district at 39% and another at zero.²

² Due to data limitations, Warren County had a very low student –teacher match rate. This would explain the successive zeros in many of the teacher quality categories.

Table 11: Exposure of Elementary School Students to Teachers with Listed Characteristics in NC in 2005-06

Elementary School	Education		Licensing					Experience		Class Size
	% At least a Master's degree	% At least very competitive bachelors	% Continuing license	% Provisional/emerg./ temp. license	% Lateral entry	% National Board Certified	% Certified, iIn-field teaching	% First year teachers	% More than 3 years teaching experience	Average class size
Rest of NC	31.2	7.0	80.7	4.6	1.3	10.3	84.0	7.1	86.8	22
All 16 DSSF Districts	27.1	5.5	80.3	5.3	2.4	4.1	87.0	8.1	87.0	21
Edgecombe	15.6	2.6	72.1	6.8	1.7	7.8	93.0	13.1	74.6	22
Elizabeth City/Pasquotank	20.3	1.8	80.7	8.3	0.4	1.7	89.4	0.0	95.2	20
Franklin	22.7	54.6	100.0	17.0	0.0	0.0	39.1	0.0	100.0	18
Halifax	16.1	12.2	75.9	3.4	4.3	1.3	89.0	6.0	90.1	19
Hertford	21.4	0.0	92.0	2.3	1.2	2.6	92.7	2.3	95.6	20
Hoke	27.4	0.0	85.6	11.5	0.0	0.0	88.5	7.9	92.1	20
Hyde	27.1	1.7	68.2	2.9	0.0	0.0	89.1	16.5	77.8	21
Lexington City	34.3	13.0	97.2	4.6	0.0	0.0	82.4	0.0	100.0	14
Montgomery	0.0	0.0	80.0	0.0	0.0	0.0	100.0	20.0	80.0	6
Northhampton	41.7	8.2	91.9	3.3	1.2	11.5	97.0	0.0	98.5	23
Robeson	35.3	1.4	85.0	3.8	2.2	4.5	90.6	6.1	89.1	22
Thomasville City	9.0	3.6	47.7	21.5	0.7	2.5	75.5	31.7	62.5	20
Vance	16.2	16.5	67.0	3.9	18.1	2.6	65.2	14.4	74.8	15
Warren	0.0	100.0	32.7	0.0	0.0	0.0	0.0	67.3	32.7	19
Washington	20.1	2.6	83.9	3.4	0.0	4.7	96.3	6.9	83.9	19
Weldon City	23.6	11.8	57.6	15.3	6.3	0.0	85.4	0.0	100.0	17

2004-05 to 2005-06 Change in Teacher Quality for Elementary School Students

As shown in Table 12, when examining the change between 2004-05 and 2005-06 within the DSSF districts, students were 1.08 times more likely to be taught by teachers holding at least a Master's degree, and 1.22 times more likely to have teachers holding a bachelors degree from a very or highly competitive institution. While students spent 1.08 times more time with NBCTs, they also spent 1.51 times as much of the day in core courses taught by teachers holding a provisional, emergency, or temporary license and spent 1.41 times more of the day in core courses with lateral entry teachers. This is coupled with the fact that students spent 1.12 times more of the day in 2005-06 with first year teachers than in 2004-05. This suggests that at the elementary school level, DSSF districts retained higher quality teachers and perhaps hired better quality new teachers.

Table 12: Change Between 2004-05 and 2005-06 in Exposure to Teachers with Certain Characteristics in NC Elementary Schools

(2004-05 DSSF district exposure rates used as base)

Elementary School		DSSF Districts
		Ratio of 2005-06 to 2004-05
Education	% At least a Master's degree	1.08
	% At least very competitive bachelor's degree	1.22
Licensing	% Continuing license	1.00
	% Provisional/ emergency/ temporary license	1.51
	% Lateral entry	1.41
	% National Board Certified	1.08
	% Certified, in-field teaching	0.98
Experience	% First year teacher	1.16
	% More than 3 years of teaching experience	1.12
Class Size	Average class size	1.00

Academically Disadvantaged Elementary School Students

When examining the distribution of teacher quality among students within the DSSF districts in 2005-06, academically disadvantaged students had lower exposure rates across all measures of teacher quality, except for class, size as compared to their more advantaged peers (Table 13). For example, 84% of student time in core courses for proficient students was spent with a teacher holding a continuing license, compared to 78% for academically disadvantaged students. Among academically disadvantaged students in DSSF districts, 86% of student time was spent with a certified, in-field teacher, compared to 89% of time for their more advantaged peers.

Among all academically disadvantaged students, 9.2% of student time in non-DSSF districts was with a NBCT, compared to only 3.3% of student time for academically disadvantaged students in DSSF districts. In general, academically disadvantaged students in non-DSSF districts had higher exposure rates to teachers with at least a Master’s degree or who had a bachelor’s degree from at least a very competitive institution. Moreover, academically disadvantaged DSSF students had higher exposure rates to teachers with a provisional, emergency, or temporary license and to lateral entry teachers. However, exposure to teachers with a continuing license, to certified, in-field teachers, and to teachers with more than three years of experience was similar across both groups of academically disadvantaged students.

Table 13: Elementary School Students’ Exposure to Teachers with Certain Characteristics for Academically Disadvantaged and Proficient Students in 2005-06 (2004-05 DSSF district exposure represents the base)

Elementary School		Academically Disadvantaged		Proficient	
		Rest of NC	DSSF	Rest of NC	DSSF
Education	% At least a Master’s degree	30.4	25.7	31.7	29.8
	% At least very competitive bachelor’s degree	6.2	4.8	7.7	7.0
Licensing	% Continuing license	78.9	78.3	82.4	84.0
	% Provisional/emergency/ temporary license	4.5	5.8	4.7	4.6
	% Lateral entry	1.5	2.6	1.0	1.9
	% National Board Certified	9.2	3.3	11.3	5.6
	% Certified, in-field teaching	85.5	85.8	82.9	89.4
Experience	% First year teacher	7.9	8.8	6.4	6.9
	% More than three years of teaching experience	85.3	85.8	88.1	89.6
Class Size	Average class size	21	20	23	21

When comparing the change in the exposure rates, in 2005-06 academically disadvantaged students in DSSF districts were more likely to be exposed to newly hired teachers and less likely to encounter a NBCT than in 2004-05 (Table 14). For example, within DSSF districts, disadvantaged students spent 1.21 times more of the day in core classes with a teacher holding a provisional, temporary, or emergency license; 1.15 times more of the day with a lateral entry teacher; and 1.30 times more of the day with a first year teacher. However, these same students also spent more time exposed to a teacher with at least a Master’s degree (1.25) and a teacher with a bachelor’s degree from a highly or very competitive institution (1.76).

Table 14: Ratio of Change in Exposure to Teachers with Certain Characteristics for Academically Disadvantaged and Proficient Elementary School Students Between 2004-05 and 2005-06 (2004-05 DSSF district exposure represents the base)

Elementary School		Academically Disadvantaged			
		Rest of NC		DSSF	
		2004-05	2005-06	2004-05	2005-06
Education	% At least a Master's degree	1.19	1.37	1.00	1.25
	% At least very competitive bachelor's degree	1.50	2.00	1.00	1.76
Licensing	% Continuing license	1.09	1.03	1.00	1.01
	% Provisional/emergency/ temporary license	0.62	1.00	1.00	1.21
	% Lateral entry	0.37	0.85	1.00	1.15
	% National Board Certified	2.52	3.07	1.00	0.93
	% Certified, in-field teaching	1.02	0.99	1.00	1.00
Experience	% First year teacher	1.11	0.93	1.00	1.30
	% More than three years of teaching experience	0.96	1.12	1.00	1.11
Class Size	Average class size	1.00	1.00	1.00	0.95

On average, DSSF elementary schools resembled non-DSSF elementary schools in terms of exposure rates to teacher quality. Moreover, DSSF districts did a better job of distributing teachers of higher quality to the academically disadvantaged student population than middle or high schools.

Teachers' Salaries in DSSF and Neighboring Districts: 2003-04 to 2005-06

The final section of this report assesses the extent to which DSSF funds have been used in these districts to reach parity in terms of teachers' salary supplements with surrounding districts, with whom they are likely to compete for teachers.

In our previous report, we detailed the results of our extensive field work in each of the 16 pilot districts after the first year of DSSF. In each of the 16 districts, we gathered information from teachers, principals, and district administrators concerning the most important problems facing 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.

Evidence clearly supports that teacher turnover is one of the largest problems facing the 16 pilot districts. According to DPI, the turnover rates during the 2004-05 school year in these districts

ranged from 6.35% to 25.56%³. In some individual schools the rate was as high as 47.2%⁴. Some of these schools face teacher turnover during the school year in addition to these end-of-the-year turnover rates.

As previously reported, 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 with local funds. However, most of the DSSF pilot districts had been unable to provide salary supplements or other salary incentives that were competitive with nearby districts.

In 2004-05, DSSF represented a rather modest percentage of teachers' base pay (Table 15). In 2005-06, three districts did not fund any of their regular salary with DSSF, while two districts averaged around 3%. In terms of teacher pay, the DSSF pilot funds were primarily used for supplements. In 2004-05 all but one district used DSSF for teacher bonuses, with an average of 26% of bonuses covered by DSSF. Three districts funded nearly half of their teacher bonuses with DSSF. In 2005-06, there was some confusion among the individual districts about how much of the DSSF could be used for teacher bonuses. It was decided that only one-third of a district's DSSF funding could go towards teacher bonuses. However, some districts received conflicting information with some being told no DSSF money could be used and others being told there were actually no changes. Therefore, in 2005-06, six districts did not use any of their DSSF to fund teacher bonuses. However, one district funded 80% of their teacher bonuses with DSSF.

³ <http://www.ncpublicschools.org/humansrcs/downloads/200405teacherturnoverreport.pdf>

⁴ This is based on our analysis of turnover of teachers paid in schools in 2003-04 but not 2004-05.

Table 15: DSSF Funds as Percentage of Regular and Bonus Teachers Pay by LEA

LEA	LEA Name	2004-05		2005-06	
		DSSF as % of Regular Salary	DSSF as % of Supplements	DSSF as % of Regular Salary	DSSF as % of Supplements
291	Lexington City Schools	2.37	43.13	3.99	48.37
292	Thomasville City Schools	0.15	20.01	1.97	80.25
330	Edgecombe County Schools	0.03	25.57	0.00	20.31
350	Franklin County Schools	1.75	4.02	3.65	0.00
420	Halifax County Schools	0.00	47.88	0.00	0.00
422	Weldon City Schools	1.52	1.92	4.51	0.00
460	Hertford County Schools	0.31	34.53	1.82	24.53
470	Hoke County Schools	2.03	27.58	1.55	26.69
480	Hyde County Schools	2.08	0.00	3.87	0.00
620	Montgomery County Schools	0.38	36.50	0.27	2.80
660	Northampton County Schools	0.73	7.71	1.06	0.00
700	Elizabeth City/Pasquotank County Schools	1.63	12.61	2.92	4.44
780	Robeson County Schools	0.54	46.55	0.49	57.13
910	Vance County Schools	1.56	21.52	2.96	9.24
930	Warren County Schools	2.24	2.87	1.28	9.19
940	Washington County Schools	0.00	1.64	0.00	0.00
All		0.97	26.36	1.53	21.63

DATA sources: certified pay files (for regular pay); Non certified bonus data object codes 181,183,184,187

Definition of Teachers: Purpose cods 5100,5200,5500; Object codes 121,123,125,126,128,129

Table 16 shows the three-year progress DSSF districts made in their attempts to reach parity with the rest of the state and with their neighbors in terms of the amount of total pay they were able to offer teachers. As column 3 shows, in the 2003-04 school year, DSSF district teachers received, on average, \$2264 less in total compensation than non-DSSF district teachers across the state. This difference was reduced by \$382 to a total of \$1882 in 2004-05, mostly due to the average \$500 increase in the supplementary pay for DSSF district teachers. By 2005-06, the difference in total compensation between DSSF and non-DSSF teachers across the state remained unchanged when compared to the previous year. In other words, between 2004-05 and 2005-06 DSSF district teachers were still making, on average, \$1880 less than their counterparts across the state.

Our main interest was to compare DSSF districts with their closest (contiguous) non-DSSF neighbors in order to assess their competitiveness in terms of teacher salary. The result of this comparison is presented in columns 5 and 7. Column 5 shows the difference between a DSSF districts' average teacher compensation and their closest (unique) non-DSSF neighbors. Column 7 presents the difference between DSSF districts' average teacher compensation and their closest (contiguous) non-DSSF districts' average pay weighted by the size of the contiguous DSSF

district's size⁵. When compared to their closest neighbors, DSSF district teachers in 2003-04 received \$2087 less than non-DSSF district teachers. This difference was mainly attributed to higher supplementary payments in non-DSSF districts. By 2004-05, the gap in average supplementary payments between DSSF and their non-DSSF neighboring districts was greatly reduced from \$1512 to \$901; but increased again to \$1241 by 2005-06. Overall, the gap between DSSF districts' average teacher compensation and their neighbors decreased between 2003-04 and 2004-05, but it remained virtually unchanged between 2004-05 and 2005-06. Many studies have found that increases in salary help recruit and retain more highly qualified teachers. DSSF pilot districts were moving in a positive direction in 2004-05 but did not maintain the momentum in 2005-06.

Table 16: Average Teacher Salaries for DSSF and Non-DSSF Districts 2003-04, 2004-05, 2005-06

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Year	Type of Pay	All DSSF districts	All Non DSSF districts	Difference (2)-(1)	All (unique) DSSF Neighbors	Difference (4)-(1)	All Neighbors (weighted by DSSF size)	Difference (6)-(1)
2003- 04	Regular Pay	29,711	30,465	(754)	30,285	(574)	29,695	16
	Supplements	958	2,468	(1,510)	2,470	(1,512)	1,998	(1,040)
	Total Pay	30,669	32,933	(2,264)	32,755	(2,087)	31,694	(1,025)
2004-05	Regular Pay	29,868	30,726	(858)	30,559	(691)	29,809	59
	Supplements	2,158	3,182	(1,023)	3,059	(901)	2,666	(508)
	Total Pay	32,026	33,907	(1,882)	33,618	(1,592)	32,475	(449)
2005-06	Regular Pay	30,324	30,851	(527)	30,518	(195)	30,033	291
	Supplements	1,769	3,120	(1,351)	3,010	(1,241)	2,587	(818)
	Total Pay	32,093	33,971	(1,878)	33,528	(1,436)	32,620	(527)

DATA sources: certified pay files (for regular pay); Non certified bonus data Obj codes 181,183,184,187
Definition of Teachers: Purp 5100,5200,5500; Obj 121,123,125,126,128,129

⁵ We weighted the average teacher compensation for neighboring districts by DSSF district size in order to avoid distortions created by larger DSSF districts having more neighbors.

Brief Summary of the Teacher Quality Update

In sum, the DSSF districts appear to have made some progress in improving teacher quality and improving teacher salaries in the first two years of the Disadvantaged Student Supplemental Fund. However, the progress of these districts has been largely offset by progress in other districts and, in the case of salaries, decisions not to use the DSSF funding or other sources of funds to raise teacher salaries. In the 2006-07 academic year, the DSSF program was extended statewide. The funding levels in the original 16 pilot districts have been maintained while other districts were funded on the basis of the percentages of disadvantaged students in those districts. We will continue to monitor teacher quality both in the pilot districts and for academically disadvantaged students throughout the state.

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