



STUDENT ACHIEVEMENT

AND THE DISTRIBUTION OF HUMAN AND FISCAL RESOURCES IN MISSISSIPPI PUBLIC SCHOOL DISTRICTS

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INTRODUCTION

Does money matter? Does teacher quality matter? Do the schools and districts that receive the most (in terms of resources, like money and high quality teaching staffs) produce the most (in terms of desirable outcomes, like student achievement measures)? These are questions raised by researchers, policymakers, and taxpayers alike.

In an effort to explore whether resources matter in Mississippi, this study investigates the relationship between (1) student achievement and (2) human and fiscal resources among school districts. In considering these relationships, it is important to recognize that the cost of providing an adequate education may vary with the socioeconomic characteristics of the district, and that other factors may affect the relationship between achievement patterns and resources. For instance, districts that serve higher percentages of students who face non-academic barriers to high achievement (poverty, low education levels among adults, etc.) require additional resources to “level the playing field” for their students. With that in mind, the study also includes socioeconomic characteristics of school districts and their communities in the analysis.

Findings suggest that the distribution of human and fiscal resources throughout the state does in fact mirror the distribution of student achievement, in ways that place school systems serving the most challenged student populations in the unenviable position of attempting to do more for their students with fewer resources available.

For this analysis, we computed a composite achievement score for each school district by aggregating student-weighted performance for three consecutive years (2001-02, 2002-03, and 2003-04) on the Mississippi Curriculum Test (for grades 2-8 in reading, language arts, and math, the percentage of students scoring “proficient” or “advanced”); the Subject Area Testing Programs (for algebra, biology, U.S. history, English, and writing, the percentage of students with a “pass” score), and the state’s Writing Assessment (for grades 4 and 7, the percentage of students scoring 3 or 4 on the scale of 0-4 points). The achievement scores reported here represent the total percentage of students meeting with success as measured and defined by the individual tests. All data used in the study are maintained by the Mississippi Department of Education, the National Center for Educational Statistics, and the U.S. Census Bureau and are available to the general public. The research included all public school districts that were operational in the school year 2003-2004—a total of 149. The state’s three agricultural high school districts were excluded because of missing data and overlapping data in the NCES data files.

We first divided the 149 districts into two groups: those scoring at or above the state average on the composite achievement measure (high-achieving), and those scoring below the state average (low-achieving). To further differentiate, we then divided the low-achieving group into three sub-groups of roughly equal size, again on the basis of their composite achievement score (high, mid, and low). We similarly divided the high-achieving group into three sub-groups of roughly equal size based on their composite achievement scores (high, mid, and low).

Results from comparing the lowest-achieving districts (i.e., the bottom third of the low-achieving group) with all other districts suggest a relationship between demographic characteristics, fiscal conditions and teacher quality, and student academic outcomes in Mississippi. The same relationship was even more apparent in a comparison between the lowest-achieving districts and the whole group of high-achieving districts, and was most apparent in a comparison between the lowest-achieving districts and the highest-achieving districts (i.e., the top third of all high-achieving districts).

We conducted an additional comparison to further investigate the possibility that money and teacher quality matters—and more particularly, that it matters in raising the achievement levels of students who face the greatest obstacles. It is already established that student achievement in Mississippi is characterized by gaps between affluent children and poor children, and between white children and children of color. We began this ancillary analysis by selecting districts with 75% or higher free and reduced meal rates (a measure of poverty in the student body) and 75% or larger African-American population. We then divided the 50 districts in this group into three groups of roughly equal size, based on composite achievement scores. The higher-achieving districts were then compared with the lower-achieving districts. Results here suggest that among high poverty, predominantly African-American communities, the distribution of fiscal resources and teacher quality mirrors the distribution of achievement.

LOWEST-ACHIEVING DISTRICTS AND ALL OTHER DISTRICTS

We first compared the districts from the lowest-achieving category with all other districts. The picture that emerges from the comparison is one of predominantly African-American communities facing serious socioeconomic barriers to high student achievement, and doing so with less money, higher non-instructional costs, and less-qualified teaching staffs (see Tables 1-3).

Table 1. Demographic characteristics of lowest-achieving districts and all other districts

Districts	Students	Percent African-American Students	Percent Free or Reduced Meals	Percent Households in Poverty	Percent Adult Unemployment	Percent Adults w/o High School Diploma
Lowest-achieving (n=31)	61,328	92%	92%	29%	11%	35%
All others (n=118)	429,178	45%	61%	18%	7%	26%

Table 2. Fiscal characteristics of lowest-achieving districts and all other districts

Districts	Local Property Valuation per Pupil	Local Revenue per Pupil	Combined State and Local Revenue per Pupil	Pupil Support Services Expenditures per Pupil	Staff Support Services Expenditures per Pupil	Operations and Maintenance Expenditures per Pupil	Transportation Expenditures per Pupil
Lowest-achieving (n=31)	\$32,170	\$1,733	\$5,159	\$215	\$317	\$545	\$238
All others (n=118)	\$45,178	\$1,985	\$5,288	\$235	\$223	\$528	\$234

Table 3. Teaching staff characteristics of lowest-achieving districts and all other districts

Districts	Total n of Teachers	Percent Highly-Qualified Teachers	Percent Emergency Certified Teachers
Lowest-achieving (n=31)	3,924	93.1%	4.3%
All others (n=118)	27,400	97.7%	1.3%

In comparison with the other 118 districts, the lowest-achieving 31 districts have:

- More than double the percentage African-American student population;
- 51% higher rate of students eligible for free or reduced meals;
- 61% higher rate of households in poverty;
- 57% higher adult unemployment rate;
- 35% higher rate of adults without a high school diploma.

They operate in a fiscal environment characterized by:

- \$13,008 (29%) per pupil less in local property tax base;
- \$252 (13%) per pupil less in local revenues;
- \$129 (2%) per pupil less in combined state and local revenues;
- \$20 (9%) per pupil less expended for pupil support services;
- \$94 (30%) per pupil more expended for staff support services;
- \$17 (3%) per pupil more expended for operations and maintenance;
- \$4 (2%) per pupil more expended for pupil transportation.

Their teaching staffs are characterized by:

- 5% lower rate of highly-qualified teachers;
- More than double the rate of emergency certified teachers.

Composite achievement scores for these two groups were 52% (lowest-achieving) and 72% (all others). It is evident from the above comparisons that these lowest-achieving districts face more serious challenges and do so with less in terms of both fiscal and human resources.

LOWEST-ACHIEVING AND ALL HIGH-ACHIEVING DISTRICTS

We next compared the districts from the lowest-achieving category with all of the high-achieving districts—i.e., those with composite achievement scores at or above the state average (see Tables 4-6). The contrast here is even more pronounced.

Table 4. Demographic characteristics of lowest-achieving districts and all high-achieving districts

Districts	Students	Percent African-American Students	Percent Free or Reduced Meals	Percent Households in Poverty	Percent Adult Unemployment	Percent Adults w/o High School Diploma
Lowest-achieving (n=31)	61,328	92%	92%	29%	11%	35%
High-achieving (n=71)	270,499	28%	50%	15%	6%	24%

Table 5. Fiscal characteristics of lowest-achieving districts and all high-achieving districts

Districts	Local Property Valuation per Pupil	Local Revenue per Pupil	Combined State and Local Revenue per Pupil	Pupil Support Services Expenditures per Pupil	Staff Support Services Expenditures per Pupil	Operations and Maintenance Expenditures per Pupil	Transportation Expenditures per Pupil
Lowest-achieving (n=31)	\$32,170	\$1,733	\$5,159	\$215	\$317	\$545	\$238
High-achieving (n=71)	\$49,544	\$2,036	\$5,350	\$232	\$204	\$507	\$227

Table 6. Teaching staff characteristics of lowest-achieving districts and all high-achieving districts

Districts	Total n of Teachers	Percent Highly-Qualified Teachers	Percent Emergency Certified Teachers
Lowest-achieving (n=31)	3,924	93.1%	4.3%
High-achieving (n=71)	17,387	98.8%	.7%

In comparison with the 71 high-achieving districts, the lowest-achieving 31 districts have:

- More than three times higher percentage African-American student population;
- 84% higher rate of students eligible for free or reduced meals;
- Nearly double the rate of households in poverty;
- Nearly double the adult unemployment rate;
- 46% higher rate of adults without a high school diploma.

They operate in a fiscal environment characterized by:

- \$17,374 (59%) per pupil less in local property tax base;
- \$303 (15%) per pupil less in local revenues;

- \$191 (4%) per pupil less in combined state and local revenues;
- \$17 (7%) per pupil less expended for pupil support services;
- \$113 (55%) per pupil more expended for staff support services;
- \$38 (7%) per pupil more expended for operations and maintenance;
- \$11 (5%) per pupil more expended for pupil transportation.

Their teaching staffs are characterized by:

- 5.7% lower rate of highly qualified teachers;
- More than five times the rate of emergency certified teachers.

Composite achievement scores for these two groups were 52% (lowest-achieving) and 78% (highest-achieving).

LOWEST-ACHIEVING AND HIGHEST-ACHIEVING DISTRICTS

The contrasts in educational opportunities encountered by Mississippi's children are especially dramatic in a comparison of districts from the lowest-achieving category with the 20 highest-achieving districts in the state (see Tables 7-9).

Table 7. Demographic characteristics of lowest-achieving districts and highest-achieving districts

Districts	Students	Percent African-American Students	Percent Free or Reduced Meals	Percent Households in Poverty	Percent Adult Unemployment	Percent Adults w/o High School Diploma
Lowest-achieving (n=31)	61,328	92%	92%	29%	11%	35%
Highest-achieving (n=20)	92,442	21%	40%	12%	5%	20%

Table 8. Fiscal characteristics of lowest-achieving districts and highest-achieving districts

Districts	Local Property Valuation per Pupil	Local Revenue per Pupil	Combined State and Local Revenue per Pupil	Pupil Support Services Expenditures per Pupil	Staff Support Services Expenditures per Pupil	Operations and Maintenance Expenditures per Pupil	Transportation Expenditures per Pupil
Lowest-achieving (n=31)	\$32,170	\$1,733	\$5,159	\$215	\$317	\$545	\$238
Highest-achieving (n=20)	\$53,823	\$2,192	\$5,433	\$233	\$185	\$507	\$223

Table 9. Teaching staff characteristics of lowest-achieving districts and highest-achieving districts

Districts	Total n of Teachers	Percent Highly-Qualified Teachers	Percent Emergency Certified Teachers
Lowest-achieving (n=31)	3,924	93.1%	4.3%
Highest-achieving (n=20)	5,583	99.2%	.6%

In comparison with the 20 highest-achieving districts, the lowest-achieving 31 districts have:

- Nearly 3.5 times higher percentage African-American student population;
- More than double the rate of free and reduced meals;
- Nearly 2.5 times the rate of households in poverty;
- More than double the adult unemployment rate;
- 75% higher rate of adults without a high school diploma.

They operate in a fiscal environment characterized by:

- \$21,653 (40%) per pupil less in local property tax base;
- \$459 (21%) per pupil less in local revenues;
- \$274 (5%) per pupil less in combined state and local revenues;
- \$18 (8%) per pupil less expended for pupil support services;
- \$132 (71%) per pupil more expended for staff support services;
- \$38 (7%) per pupil more expended for operations and maintenance;
- \$15 (7%) per pupil more expended for pupil transportation.

Their teaching staffs are characterized by:

- 6.1% lower rate of highly qualified teachers;
- More than seven times the rate of emergency certified teachers.

Composite achievement scores for these two groups were 52% (lowest-achieving) and 82% (highest-achieving).

HIGHER-ACHIEVING AND LOWER-ACHIEVING HIGH-POVERTY/PREDOMINANTLY AFRICAN-AMERICAN SCHOOLS

Existing research has established that race- and poverty-based achievement gaps are present among Mississippi's students. As a way of investigating whether spending levels and teacher qualifications make a difference in closing gaps by raising achievement levels in communities that face the greatest challenges, we next compared the highest- and lowest-achieving categories of districts from among the subset of districts with 75% or higher African-American student populations and 75% or more free and reduced meals (see Tables 10-11).

Table 10. Fiscal characteristics of higher- and lower-achieving high poverty/predominantly African-American districts

Districts	Total Current Expenditures per Pupil	Instructional Expenditures per Pupil	Pupil Support Services Expenditures per Pupil	Staff Support Services Expenditures per Pupil	Transportation Expenditures per Pupil
High AA/ Poverty, Higher Achieving (n=15)	\$6,124	\$3,542	\$289	\$314	\$183
High AA/ Poverty, Lower Achieving (n=21)	\$5,884	\$3,320	\$203	\$343	\$244

Table II. Staff characteristics of higher- and lower-achieving high poverty/predominantly African-American districts

Districts	Total n of Teachers	Percent Highly-Qualified Teachers	Percent Emergency Certified Teachers	Student – Teacher Ratio	Ratio of Students to HQT Core Teachers
High AA/ Poverty, Higher Achieving (n=15)	2,330	96.0%	2.7%	15.2	17.8
High AA/ Poverty, Lower Achieving (n=21)	2,345	92.2%	4.7%	15.8	18.9

In comparison with the 15 high poverty/predominantly African-American districts with higher achievement levels, the 21 high poverty/predominantly African-American districts with lower achievement levels operate with the support of the following resources:

- \$240 per pupil less in total current expenditures;
- \$222 per pupil less in total current expenditures for instruction;
- \$86 per pupil less in student support services;
- \$29 per pupil more in staff support services;
- \$61 per pupil more in student transportation.

Children attending schools in these lower-achieving districts receive instruction from a teaching staff with the following characteristics:

- 4% lower rate of highly qualified teachers;

- 57% higher rate of emergency certified teachers;
- A student-teacher ratio that is .6 higher. Thus, given a district enrollment of 2,384 (the state median) the higher-achieving districts would, on average, be putting six additional teachers (a little more than one teacher per school) in the classroom to serve the same number of students);
- A ratio of students to highly-qualified core teachers (i.e., reading, writing, math, sciences) that is 1.1 higher. Thus, given a district enrollment of 2,384 (the state median) the higher-achieving districts would, on average, be putting eight additional highly-qualified core teachers (about 1.5 per school) in the classroom to serve the same number of students).

CONCLUSION

The pattern that emerges from the above series of comparisons is unmistakable. Mississippi's school districts facing the greatest challenges to high academic achievement are also the ones that have the most limited resources with which to address those challenges; those districts that face the fewest challenges are the ones with most resources. In short, it is a system where inequity in the distribution of human and financial resources mirrors inequity in the distribution of measured academic achievement. At each successive level of comparison, the lowest-achieving districts in Mississippi are at a greater disadvantage with increasingly successful districts.

Lower-achieving Mississippi school districts serve student populations with the state's highest concentrations of African-American students and children in poverty. They operate in communities that have the lowest income levels, lowest adult educational attainment rates, and highest unemployment rates.

These districts require additional resources—human and financial—to “level the playing field” so that students can reach the same achievement levels as students in other communities. They currently receive less.

These funding inequities result from a combination of (1) significant disparities in local property wealth and local revenue among school districts, and (2) a state funding mechanism that is inadequate in *equalizing* the level of revenue available for school operations. Findings indicate that the distribution of state funds in Mississippi does not ensure that all school districts are funded *at the same level*. With that in mind, when we consider that these lower-achieving districts face substantially greater challenges—challenges that call for more resources—we can conclude that the state is far away from ensuring that all school districts are funded fairly or justly.

Moreover, providing additional resources to school districts facing greater challenges is justified by the data. Specifically, comparisons between higher- and lower-achieving categories of high-poverty/predominantly African-American school districts suggest that more money and higher teacher quality makes a difference in Mississippi's most challenged districts. The “throwing good money after bad” argument does not hold up to scrutiny.

Based on findings reported here, the following policy recommendations are offered as approaches to creating and maintaining the kind of educational context that will foster excellence and equity for Mississippi's children:

1. **SCHOOL FUNDING.** Research¹ suggests that adequate funding is crucial to providing the kinds of high quality learning experiences that address the needs of all students and close achievement gaps. Accordingly, Mississippi school districts that serve students who enter school facing extraordinary challenges should not be forced to operate with lower levels of financial resources (as currently), or even the same level of resources; they should in fact receive more.
2. **TEACHER QUALITY.** Research² also suggests that teacher quality is tremendously important in closing achieving gaps and providing all students with high quality learning experiences. Results from this study suggest that higher-achieving Mississippi school districts benefit from more highly-qualified teachers, wider student access to highly qualified teachers, and fewer emergency certified teachers. Programs to recruit and retain high quality teachers, and to provide high quality professional development opportunities³ for current teachers, are essential.

Note: Figures 1-5 below depict the comparisons discussed in the earlier sections.

¹ Carey, K. (2002). *Education funding and low-income children: A review of current research*. Washington, DC: Center on Budget and Policy Priorities. Retrieved July 1, 2004 from: <http://www.centeronbudget.org>

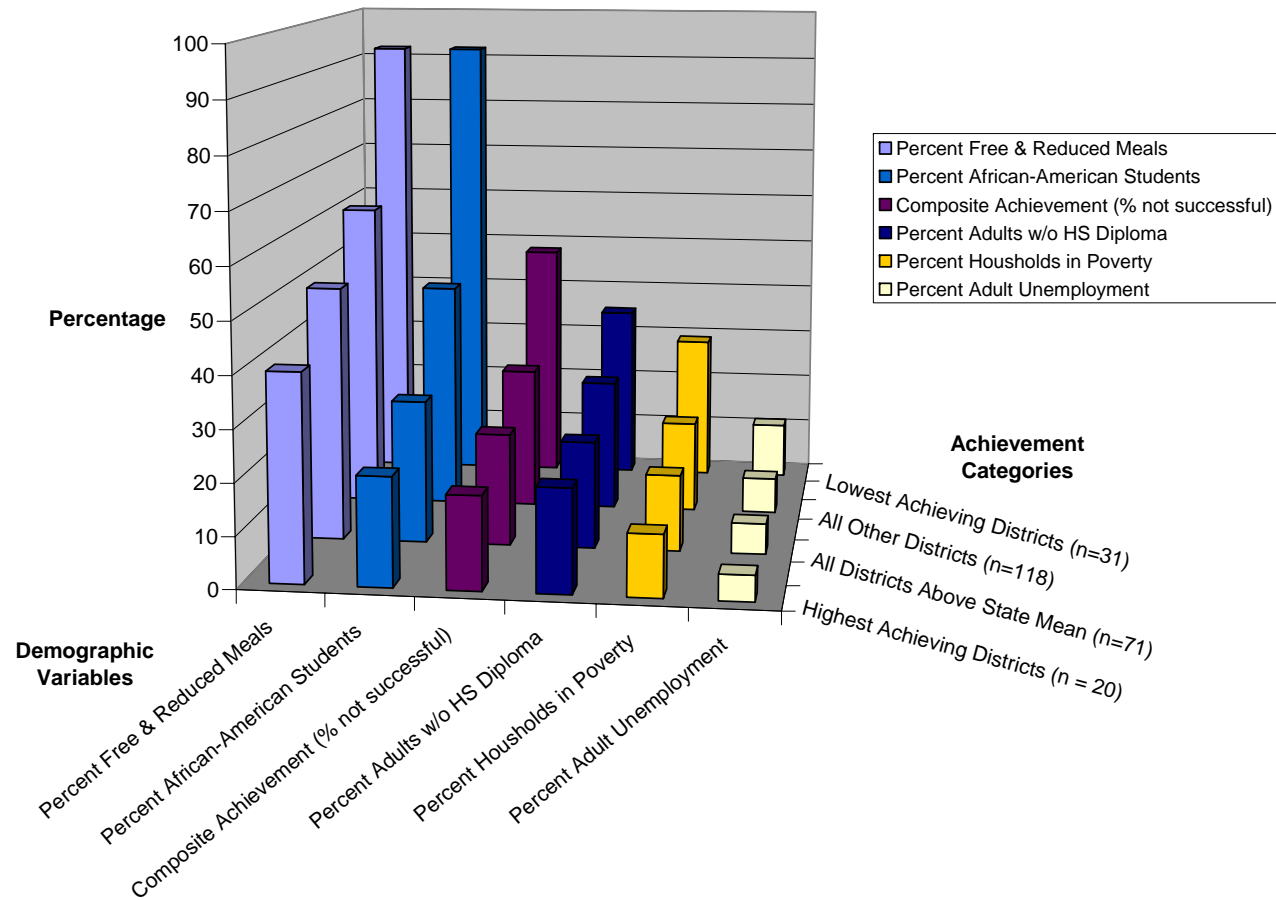
Miller, L. (1999). *Reaching the top: Report of the National Task Force on Minority High Achievement*. Princeton, NJ: The College Board. Retrieved July 1, 2004 from: http://www.collegeboard.com/repository/reachingthe_3952.pdf.

² Haycock, K. (1998). *Good teaching matters ... a lot: How well-qualified teachers can close the gap*. *Thinking K-16*, 3(2).

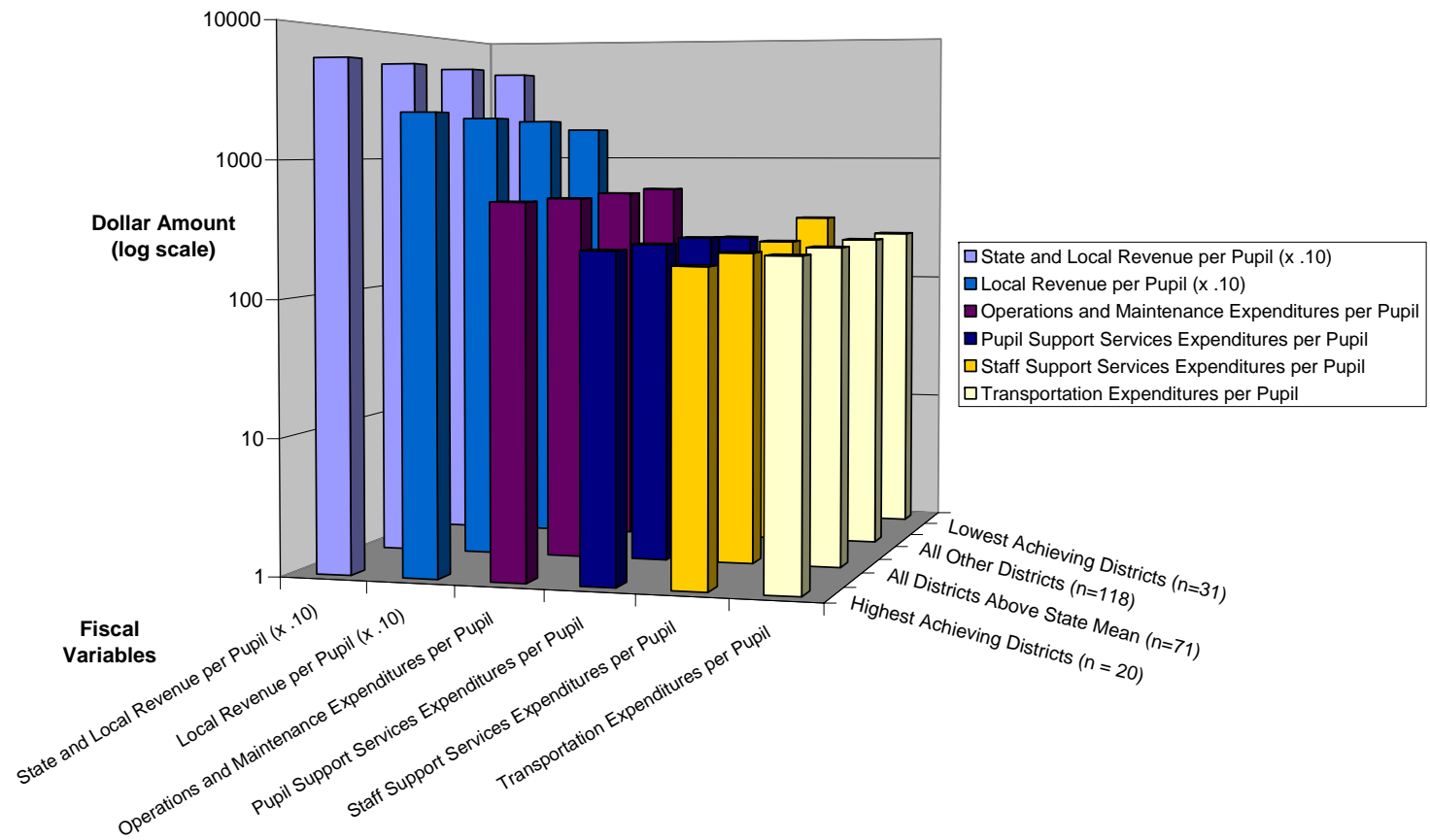
Kober, N. (2001). *It takes more than testing: Closing the achievement gap*. Center on Education Policy. Retrieved June 6, 2004 from <http://www.ctredpol.org/improvingpublicschools/closingachievementgap.pdf>

³ Of note here, results from the study indicate that lower-achieving districts spend significantly more per pupil on staff support services, an expenditure category that includes professional development. Care must be taken to ensure that the delivery of professional development opportunities throughout the state are administered in a way that does not contribute to inequity in financial resources.

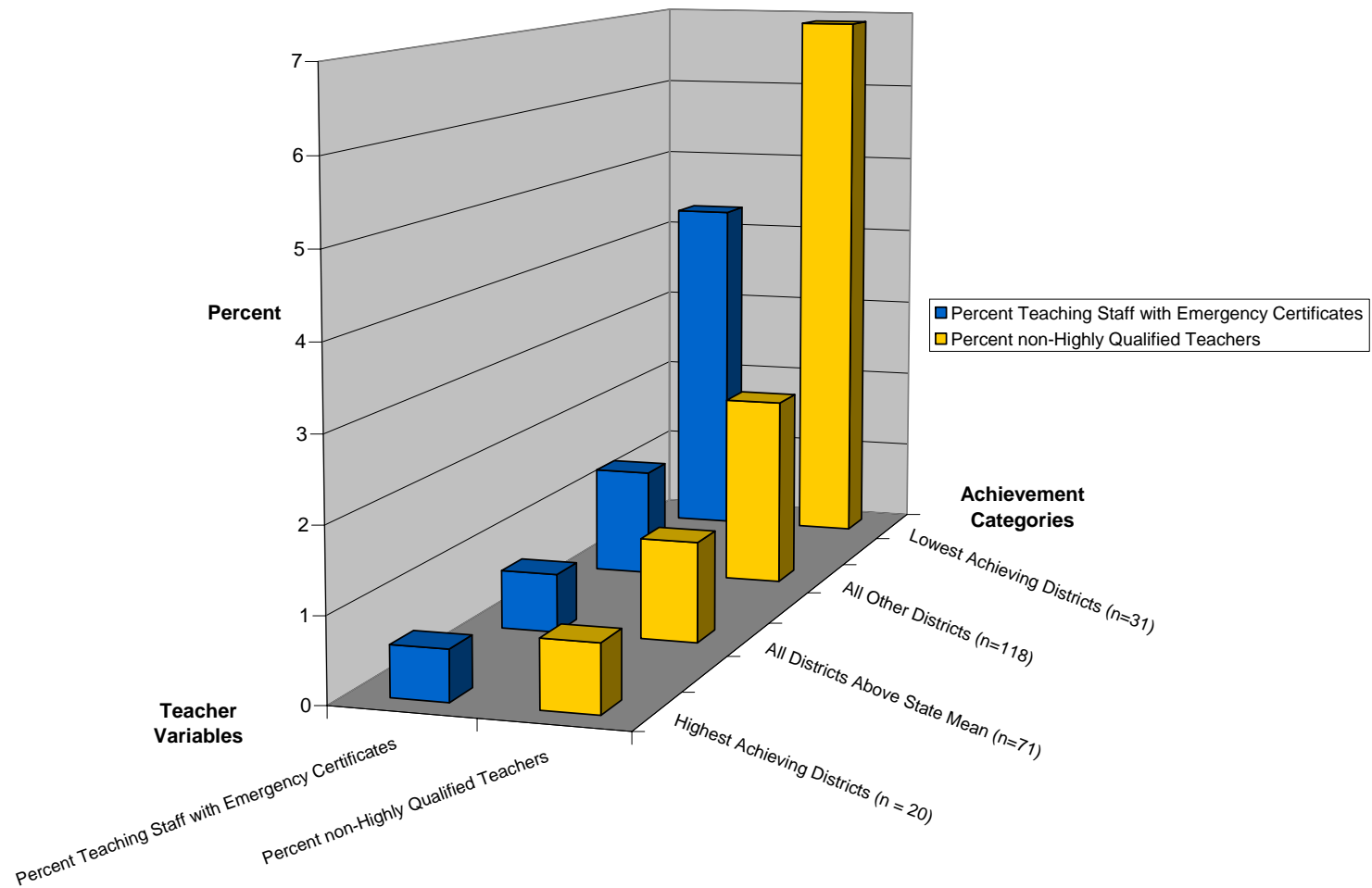
**Figure 1: Achievement Levels and Demographic Characteristics
in Mississippi School Districts**



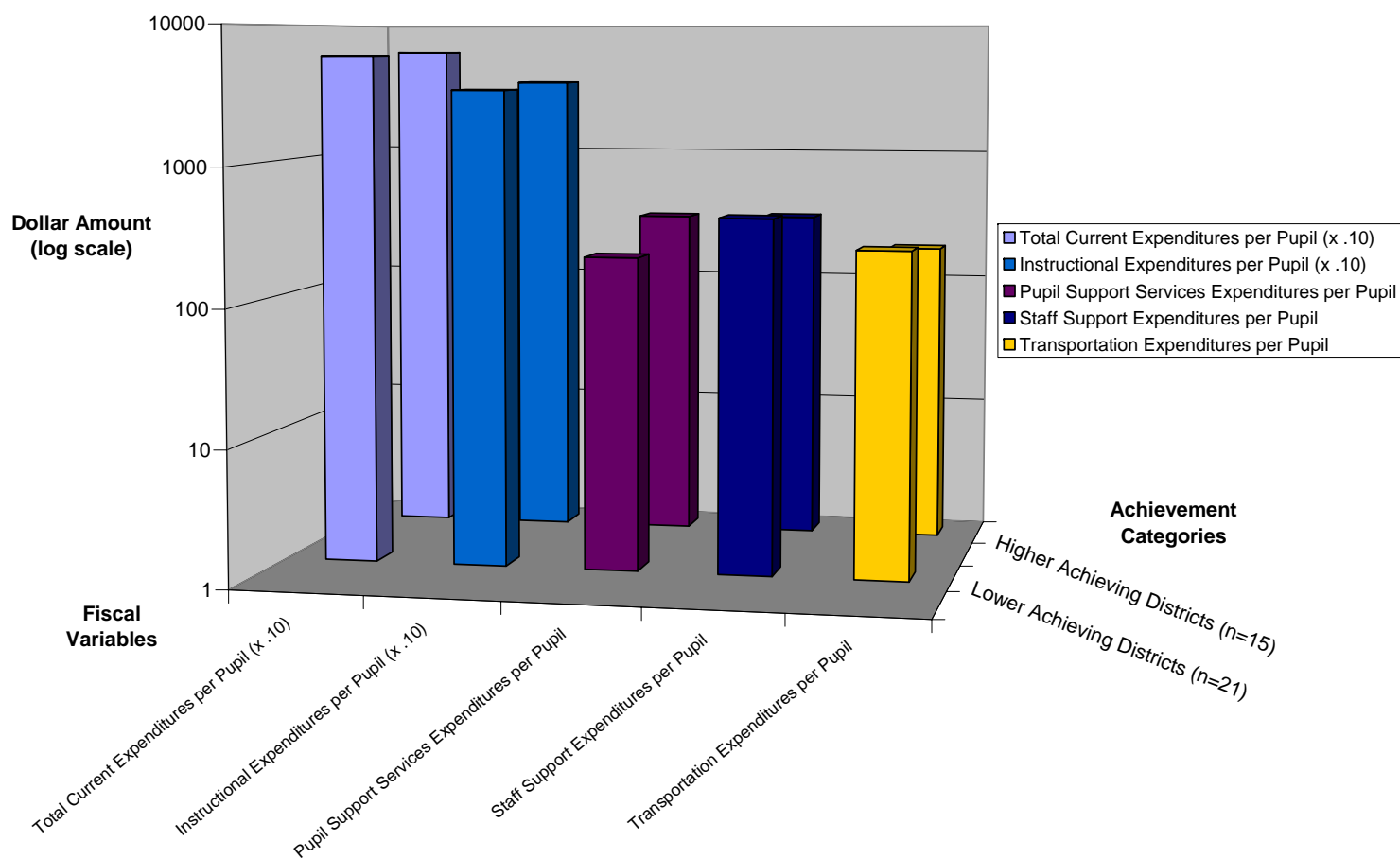
**Figure 2: Achievement Levels and Fiscal Characteristics
in Mississippi School Districts**



**Figure 3: Achievement Levels and Teacher Characteristics
in Mississippi School Districts**



**Figure 4: Achievement Levels and Fiscal Characteristics
in High-Poverty Predominantly African-American Mississippi School Districts**



**Figure 5: Achievement Levels and Teacher Characteristics
in High-Poverty Predominantly African-American Mississippi School Districts**

