Research Report

The Resource Allocation of Foundation Funding for Arkansas School Districts and Open-Enrollment Charter Schools

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Prepared for the

THE HOUSE INTERIM COMMITTEE ON EDUCATION AND THE SENATE INTERIM COMMITTEE ON EDUCATION

2015-16 Adequacy Study

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CONTENTS

INTRODUCTION

Arkansas Code § 10-3-2102 requires the Education Committees to "[r]eview and continue to evaluate the amount of per-student expenditure necessary to provide an equal educational opportunity and the amount of state funds to be provided to school districts, based upon the cost of an adequate education, and monitor the expenditures and distribution of state funds and recommend any necessary changes." The law calls for this requirement to be accomplished by completing a resource allocation review. This report serves as that required review.

Arkansas's K-12 education foundation funding formula, referred to as the matrix, is used to determine the per-pupil level of foundation funding disbursed to each school district. The components of the matrix were determined originally based on a 2003 study through additional guidance from Allan Odden, Lawrence Picus and Mark Fermanich (Picus, 2003). The levels were subsequently refined in 2006 by Allan Odden, Lawrence Picus and Michael Goetz (Picus, 2006). The matrix was not intended to reimburse schools for actual expenditures but rather to provide a methodology for determining an adequate level of funding to allow schools to meet minimum accreditation standards and adequately educate Arkansas students. This report examines school district expenditures and staffing levels in comparison with the funding level assumptions on which the foundation funding matrix is based.

EXECUTIVE SUMMARY

Foundation funding is considered unrestricted funding, meaning districts and charter schools can spend this money in whatever way best fits their needs. The matrix is designed to determine the amount of funding needed to cover the necessary components of an adequate education. Districts and charter schools are not required to mirror their spending patterns on the funding levels in the matrix formula. However, a major objective of the biennial Adequacy Study is to examine how schools have spent the foundation funding they have received to ensure that funding levels adequately meet their needs. This report describes the amount of foundation funding provided to districts for each component of the matrix and the way districts have spent those funds. It is important to remember that while foundation funding is a major source of funding for school districts, it makes up only about 57% of districts' total funding. Because school districts, on average, receive 43% of their funding from other sources, they have a variety of options for funding decisions on each line of the matrix.

Districts' actual foundation funding expenditures in 2014-15 tracked fairly closely with the intent of the matrix in some areas and less well in other areas. Average per-student spending in four areas closely matched the matrix amounts: special education teachers, principals, and transportation.

Districts generally **spent less foundation funding** than they were provided for **classroom teachers, instructional facilitators** (including assistant principals and technology assistants), **school nurses, student support services, technology** and **supervisory aides**, regardless of district size, poverty level or student achievement. For most of those items, districts may have spent less foundation funding, in part, because they had other types of funding they could use to make those purchases. However, when considering total spending from all funding sources, districts generally did not spend even the matrix level for supervisory aides.

Districts also tended to **spend more foundation funding** than they were provided on **librarians, guidance counselors, school secretaries, extra duty stipends, substitutes,** and **operations and maintenance**. The two areas in which districts spent the most foundation funding above what the matrix provided were operations and maintenance and extra duty funds.

Foundation funding was the source of revenue districts and charter schools used for at least 70% of most items in the matrix. However, districts use significant amounts of other types of funding to pay for other items in the matrix. Components of the matrix where districts used other types of funding to cover more than 30% of all costs included instructional facilitators, school nurses, student support services, technology, and instructional materials.

Most of the school-level staffing in the 2014-15 matrix was based on a base salary of $50,256. However, in practice some types of school-level staff are paid an average salary above that amount, while others are paid less. School nurses were paid about $15,000 less than the salary funded in the matrix in 2014-15. Salaries for classroom teachers and special education teachers were also slightly under the salary provided in the matrix. Assistant principals, instructional facilitators, guidance counselors and library media specialists are paid more, on average, than the salary funded in the matrix. The matrix funded principals in 2014-15 with a base salary of $79,667. The actual average salary of principals is just under that amount.

Charter schools spent less foundation funding than they were provided for every school staff component except school secretaries, where they spent 2.5 times more than the matrix amount. Charter schools also spent less than the matrix provides in extra duty funds, supervisory aides, substitutes, and transportation. Charter schools spent more foundation funding per student in areas that were generally less staff-related, including technology, instructional materials, operations and maintenance, and central office.

When analyzed by district size, **large districts spent more foundation funding** per student than small districts on school-staff related items, including:

- Classroom teachers
- Special education teachers
- Instructional facilitators
- Counselors
- Student support services

Small districts spent more foundation funding per student on administrative staff and district-level items including:

- Librarians
- Principals
- O&M
- Central Office
- Transportation

When analyzed by poverty level, **low poverty level districts spent more** foundation funding per student than high-poverty districts on:

- Classroom teachers
- Special education teachers
- Counselors
- Instructional materials
- Extra duty funds

High-poverty districts spent more foundation funding per student on:

- Principals
- Substitutes
- O&M
- Central office

This report also compared Arkansas's staffing and expenditures to that of other states in areas where reliable data were available. Arkansas **ranked high** in the **staffing levels for student support services (health services, speech pathology, etc.), library staff and district clerical staff**. The state ranked more in the middle of the pack in guidance counselors, school administrative support, instructional coordinators, and district administrators. In terms of expenditures, Arkansas **ranked high** in its **spending level per student for instructional materials**. The state ranked more in the middle of states in spending for district administrators, operations and maintenance, and instructional staff. The state **ranked among the bottom ten states in spending for special education teachers**.

DATA AND METHODOLOGY

This report reviews the basic assumptions of the matrix funding model regarding school size and the grade distribution of students and evaluates how closely today's schools' spending matches the matrix assumptions. It also compares 2014-15 school district staffing levels and expenditures with those established in the matrix formula.

FOUNDATION FUNDING EXPENDITURES

A major objective of the biennial Adequacy Study is to determine how school districts have spent the foundation funding they have received. To calculate district expenditures, data was extracted from a data warehouse maintained by the Arkansas Public School Computer Network (APSCN) Division of the Arkansas Department of Education (ADE). The expenditure coding system in APSCN does not perfectly align with the categories of the matrix. For example, there is no single expenditure code districts use to identify "technology" expenditures as recognized by past Adequacy Studies. The BLR has used its best judgment in categorizing the expenditures in a way that best fits the legislative intent expressed in past adequacy reports. The expenditure calculations in this Resource Allocation report are not perfectly comparable with numbers provided in past reports as the BLR has made slight changes in the categorization of expenditure codes it uses.

Additionally, precisely measuring districts' foundation funding expenditures has always been hindered by the fact that there is no single source of funds code that identifies expenditures made using exclusively foundation funding. Additionally school districts have a variety of funds they can use to pay for matrix items. In the district accounting system, foundation funding is placed in and spent from two funds: the Salary Matrix Fund and the Operating Matrix Fund. However, other district revenues, such as excess property tax revenue, can be comingled with current year foundation funding in these funds.

To estimate the expenditures from these funds that were made using foundation funding, the Bureau of Legislative Research (BLR) divided foundation funding districts and charter schools received in 2014-15 ($6,521 per student) by the total expenditures (excluding transfers) made from the Salary and Operating Matrix Funds to reach a percentage. That percentage was then applied to districts' total expenditures from those two funds in each matrix line item to determine the portion of expenditures made with foundation funding.

For each matrix line, this report provides average staffing levels and expenditures for the 236 districts and for the 18 open-enrollment charter schools operating in 2014-15. This report also provides the districts' expenditures per student by district size (based on average daily membership, or ADM) and by the percentage of students who are eligible for free or reduced price lunch (FRPL percentage). This type of analysis provides information on how spending patterns differ based on the size of a district or the level of poverty among its student population. The ADM and FRPL percentage used for each school year is 2013-14 data, which was used as the basis for distributing state funding in 2014-15.

This report also examines districts' per-student expenditures based on student achievement. Districts were divided into quartiles based on the percent of students who scored a 4 or a 5 ("met expectations" or "exceeded expectations") on the PARCC assessments (Partnership for Assessment of Readiness for College and Careers) in 2014-15. Each district's scores on literacy assessments and on math assessments were averaged for one single proficiency calculation. The proficiency data was obtained from the Office of Innovation for Education at the University of Arkansas. The following table provides the number of districts in each category and selected characteristics of the group. The analysis that uses this segmentation (by ADM, FRPL and student achievement) examines only traditional school districts and does not include open-enrollment charter schools.

	# of Districts	District Avg. ADM	Total ADM	District Avg. FRPL %	District Avg. Achievement
District Size					
Small (750 or Less)	83	528	43,832	69.5%	23.7%
Medium (751-5,000)	138	1,778	245,429	63.3%	26.3%
Large (5,001+)	15	11,453	171,793	57.7%	31.4%
Poverty					
Low Poverty (<70%)	135	2,257	304,734	56.2%	29.4%
Medium Poverty (70%-<90%)	92	1,617	148,755	75.4%	21.8%
High Poverty (90%+)	9	841	7,565	93.0%	10.1%
Student Achievement					
Top Quartile	59	2,566	151,371	54.5%	37.5%
2nd Quartile	59	2,295	135,432	62.4%	28.2%
3rd Quartile	59	1,641	96,799	67.3%	22.3%
Bottom Quartile	59	1,313	77,453	76.3%	14.9%

Source:http://www.arkansased.org/public/userfiles/Public_School_Accountability/School_Performance/ESEA_Act_Status_Reports/2013_District_Status_20131101.xlsx

EXPENDITURES FROM OTHER FUNDING SOURCES

This report also provides information on district expenditures on matrix items (e.g., classroom teachers) using funding other than foundation funds. For each matrix item, this report includes a pie chart showing the percentage of districts' total expenditures made using foundation funding and the percentage made using other sources of funds.

The pie charts describe the fund sources using the following fund types:

- **Foundation**: The portion of the unrestricted state funds that equals the matrix funding amount of $6,521 per student for the 2014-15 school year.
- **Other State Unrestricted:** Unrestricted state funding other than foundation funding (e.g., declining enrollment funding, student growth funding). These funds are considered unrestricted because districts are not limited in the way in which they can spend these dollars.
- **National School Lunch (NSL)**: State categorical funding based on the percentage of students receiving free or reduced price meals.
- **Professional Development (PD)**: State categorical funding for professional development activities.
- **Alternative Learning Environment (ALE)**: State categorical funding for alternative learning environments.
- **English Language Learner (ELL)**: State categorical funding for English Language Learners.
- **Other State Restricted**: Restricted state funds expended from the Salary and Operating Funds other than state categorical funds (e.g., isolated special needs transportation funding and catastrophic occurrences special need funding). These funds are considered restricted because they are intended for a particular use.
- **Federal Funds**: Federal grant funds, such as Title I, expended from the Federal Grants Fund.
- **Building Fund**: Bond proceeds, state Partnership Program facilities funding or other funds used for facilities acquisition and construction purposes.
- **Debt Service Fund**: Generally consists of property tax revenues transferred to this fund for retirement of bonded indebtedness and interest.
- **Capital Outlay/Dedicated M&O**: Property taxes from approved local millage for specific purposes.
- **Activity Fund**: Admission receipts, sales, dues and fees relating to school-sponsored athletics and activities.
- **Food Service Fund**: Includes daily sales from student meals and state and federal funding for food service operations.

DISTRICT, SCHOOL AND TEACHER SURVEYS

As part of the 2016 Adequacy Study, the BLR conducted surveys of all 234 school district superintendents and 22 open-enrollment school directors operating in 2015-16 and a randomly selected, representative sample of 73 school principals. Additionally, teachers in the 73 randomly selected schools were also invited to complete an online survey. This report provides the questions

and responses from all three surveys related to foundation funding and the matrix. Responses to other survey questions have been or will be presented in other reports throughout the Adequacy Study process.

The district-level survey was conducted using an online questionnaire. The survey was distributed to the districts beginning October 26, 2015, and the last district responded March 17, 2016. Several districts responded after analysis for this report began. The responses from those districts were excluded from analysis. The principal survey was administered through interviews with principals conducted by BLR staff during site visits to the selected schools. The school visits were made beginning October 28, 2015, with the final visit on January 29, 2016. The district survey allowed the BLR to collect specific, quantitative data from all districts, while the school survey asked more open-ended qualitative questions.

The teacher survey was conducted through an online survey. Only certified teachers in the 73 randomly selected schools were invited to complete the survey. Each principal was asked to provide the name of a teacher who would distribute the survey instructions to their colleagues. Generally only certified teachers assigned to teach a class were provided access to the survey (i.e., not administrators), but the survey pool also included guidance counselors, English as a second language teachers, alternative education teachers, library/media specialists and instructional facilitators, regardless of whether they were assigned to teach a class. Teachers accessed the survey online using an individual code that was distributed to them by the teacher representative assigned by the principal. A total of 2,464 surveys were distributed and 1,073 teachers responded as of April 1, 2016, for a response rate of 43.5%.

To elicit the most candid responses, district and school staff were assured their answers would not be individually identified, therefore responses are provided only in aggregate.

STATUTE AND STANDARDS

One measure of the adequacy of foundation funding is districts' ability to meet established statutory and regulatory standards. Each section of this report provides information on the statutory and regulatory requirements on which the foundation funding matrix is based. For example, funding for certain staff in the matrix is based on the staffing level that districts are supposed to have under state law and according to ADE rules (e.g., the Rules Governing Standards for Accreditation of Arkansas Public Schools and School Districts). This report notes where districts were cited for being out of compliance. If many districts are out of compliance on a particular standard, there may be an issue with the sufficiency of funding. If however, nearly all districts are in compliance with the standards, this may be evidence that the funding is sufficient for districts to meet the requirements.

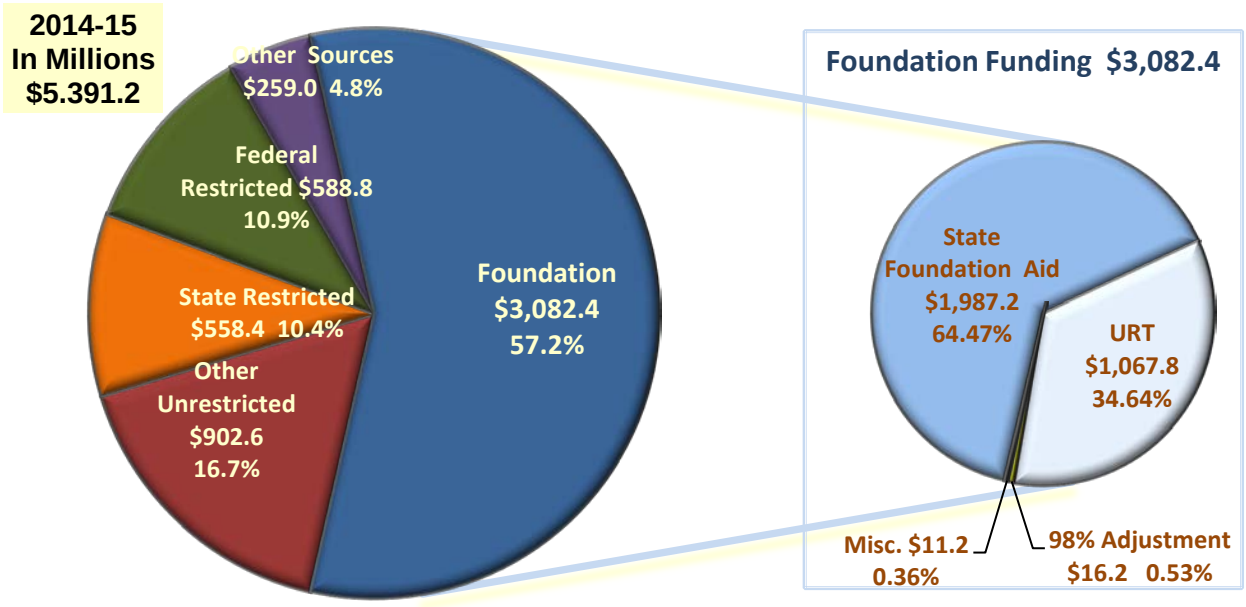
EDUCATIONAL ADEQUACY DEFINED

The Education Committees have used the following working definition of "educational adequacy" to serve as a basis for identifying the resources required for adequate funding:

1. The standards included in the state's curriculum frameworks, which define what all Arkansas students are to be taught, including specific grade level curriculum and a mandatory thirty-eight (38) Carnegie units defined by the Arkansas Standards of Accreditation to be taught at the high school level;
2. The standards included in the state's testing system. The goal is to have all, or all but the most severely disabled, students perform at or above proficiency on these tests; and
3. Sufficient funding to provide adequate resources as identified by the General Assembly.

EDUCATION FUNDING IN ARKANSAS

Arkansas schools receive many different types of funding. In 2014-15, school districts and open-enrollment schools received $5.4 billion in total revenue. Foundation funding makes up 57% of that amount. The following chart illustrates the relationship of foundation funding revenue to districts' and charter schools' total revenue. This report addresses how foundation funds are used by districts and charter schools. The chart demonstrates that significant levels of additional unrestricted revenue are available to districts to meet their adequacy needs.



- **State Unrestricted Funds** primarily consist of property tax revenues (URT) and the state aid portion of foundation funding. (The components of foundation funding are described in the next section of this report.) **Other unrestricted state funds** include student growth funding, declining enrollment funding, isolated funding and other local revenue sources. School districts have broad authority to spend these funds for their educational needs without limitation.
- **State Restricted Funds** include NSL and other categorical funds, as well as funding for Magnet School Programs, Early Childhood Education, Adult Education, Career Education, Special Education, Educational Service Cooperatives, Academic Facilities and other grants for specific programs.
- **Federal Revenues** include Title I funding, the Individuals with Disabilities Education Act (IDEA), Part B funding, School Lunch and Breakfast grant funds and other federal grant funding.
- **Other Funding Sources** include the sale of bonds for construction activities, loans, insurance compensation for loss of assets, other gains from disposals of assets and other miscellaneous funding.

FOUNDATION FUNDING OVERVIEW

Foundation funding is the building block of public education funding in the state of Arkansas (A.C.A. § 6-20-2301 et seq.). Every year the state distributes foundation funding to each school district on a per-student basis. Foundation funding is **unrestricted**, meaning the state does not specify what school districts may or may not purchase with it. This policy is intended to provide flexibility for the specific needs of each school district, allowing some districts to spend more on teacher salaries, for example, while other districts may have higher transportation needs.

Foundation funding is made up of two main sources of funding: the **Uniform Rate of Tax (URT)** and **state foundation funding aid**. The URT is a constitutionally mandated minimum millage rate (or property tax rate) that school districts must levy at the local level. This rate is set at 25 mills and is used specifically for school operations. State foundation funding aid is then provided to make up

the difference between the amount of money raised through the URT and the funding level set by the Legislature. For example, if a district's URT generated $2,521 per student in 2014-15, the district would have received an additional $4,000 in state foundation funding aid, for a total of $6,521. Two smaller components of foundation funding include the 98% URT Actual Collection Adjustment and other types of funding collectively considered "miscellaneous funds". The **98% URT Adjustment funding** is money used to supplement districts where actual URT collections are less than 98% of what was anticipated based on assessments. This funding ensures that districts receive at least 98% of their total URT funding when the county is unable to collect the full amount from its citizens. **Miscellaneous funds** are monies school districts receive from "federal forest reserves, federal grazing rights, federal mineral rights, federal impact aid, federal flood control, wildlife refuge funds, and severance taxes," that are "in lieu of taxes and local sales and use taxes dedicated to education" [§ 6-20-2303(12)(A) and (B)].

Among districts statewide in 2014-15, URT made up about 35% of the total foundation funding, while state foundation funding aid covered about 64%. However, these percentages varied greatly among individual districts. For example, in the Poyen School District, state foundation aid covered 92% of the foundation funding, with URT paying just 8%. Eight districts in 2014-15 collected more than $6,521 per student in URT alone and therefore received no state foundation funding aid. For charter schools, which have no tax base from which to collect funds, the entire foundation funding amount is covered by state foundation funding aid.

Foundation Funding Components	District Total	% of Total	Charter Total	% of Total
URT	$1,067,794,855	35.4%	$0	0%
State Foundation Funding Aid	$1,920,860,711	63.7%	$66,342,768	100%
98% Adjustment	$16,260,340	0.5%	$0	0%
Miscellaneous	$11,274,454	0.4%	$0	0%
Total	**$3,016,190,390**		**$66,342,768**	

Foundation funding is distributed based on a school district's **average daily membership** (**ADM**), which is the calculation representing a district's total number of students. Each school district receives the foundation funding amount set for each year multiplied by its prior year ADM. For example, the foundation funding rate was $6,521 for the 2014-15 school year. If a school district's ADM was 530, its funding would be determined by multiplying $6,521 by 530 for a total of $3,456,130.

The Matrix

Arkansas uses a specific formula, known as the **matrix**, to arrive at the per-student funding amount. The matrix calculates the per-student funding based on the cost of personnel and other resources needed to operate a prototypical school of 500 students. Each year legislators involved in the Adequacy Study determine the dollar amount needed to fund each line item of the matrix, based on the money needed to adequately fund school districts' educational needs. Unlike the foundation funding rate ($6,521 for 2014-15), the matrix is not established in statute. Instead, it is used as a tool to set the foundation funding rate. The matrix is divided into two basic sections: 1.) the number of people needed for the prototypical school of 500 students, and 2.) the cost of all needed resources. The first section describes the 35.665 school-level personnel needed for the prototypical school. (Beginning in 2015-16, another .25 full-time equivalent of a library/media specialist was added to the matrix to fund a total of 35.69 school-level personnel.)

	Matrix Item	2015 FTE	2016 FTE
Classroom Teachers	Kindergarten	2.00	2.00
	Grades 1-3	5.00	5.00
	Grades 4-12	13.80	13.80
	Non-Core	4.14	4.14
	Subtotal	24.94	24.94

	Matrix Item	2015 FTE	2016 FTE
Pupil Support Staff	Special Education	2.90	2.90
	Instructional Facilitators	2.50	2.50
	Library Media Specialist	0.825	0.85
	Counselors & Nurses	2.50	2.50
	Subtotal	8.725	8.75
Administration	Principal	1.00	1.00
	Secretary	1.00	1.00
	Total	**35.665**	**35.69**

The second section of the matrix specifies the cost of the staff described in the first section of the matrix, as well as the cost of all other needed resources. The matrix is divided into three cost categories:

1. **School-level salaries** of teachers and other pupil support staff, a principal and a secretary. The matrix also identifies the salaries for the school-level staff and calculates the per-student cost of paying the identified salaries for the number of staff needed.

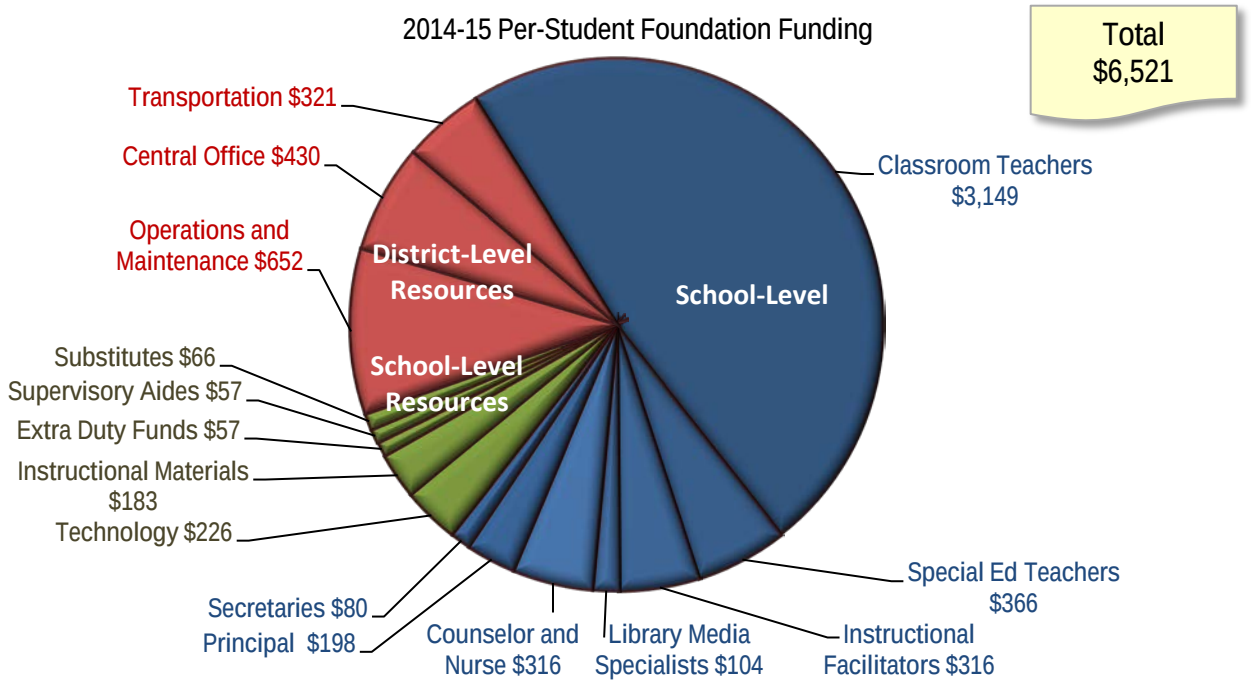
School-Level Salaries	Salary & Benefits	Per-Student Cost
Classroom Teachers	$63,130	$3,148.96
Pupil Support Staff	$63,130	$1,101.74
Principal	$99,012	$198.10
Secretary	$40,031	$80.10

2. **School-level resources** including instructional materials and technology-related expenses.

School-Level Resources	Per-Student Cost
Technology	$225.60
Instructional Materials	$183.10
Extra Duty Funds	$57.20
Supervisory Aides	$56.70
Substitutes	$66.30

3. **District-level resources**, which include funding for districts' operations & maintenance, central office and transportation expenses.

District-Level Resources	Per-Student Cost
Operations & Maintenance	$651.80
Central Office	$430.20
Transportation	$321.20



MATRIX: SCHOOL SIZE AND GRADE DISTRIBUTION

BACKGROUND

In their 2003 report to the Legislature, Picus and Associates recommended basing the state's funding model on the amount of funding and staffing needed to operate a prototypical school of 500 students. The original matrix was calculated based on that recommended school size. After a thorough review in 2006, the consultants concluded again that the use of 500 students as the base school size is a valid model for per-pupil funding, and in 2007, the method of funding was held constitutional by the Arkansas Supreme Court.

In 2003 and 2006, Picus and Associates recommended developing the matrix based on class sizes of 15 students per class for grades K-3, or an average of 18 students per class for grades K-5. They also recommended a matrix that supported class sizes of 25 students for middle and high school classes. The Arkansas Joint Legislative Committee on Educational Adequacy, however, opted to base the matrix on the state's existing class size standards (ADE's Rules Governing Standards for Accreditation of Arkansas Public Schools and School Districts). The standards limit class sizes to a maximum of 20 students per kindergarten class (or 22 students when a half-time instructional aide is present), 25 students for grades 1-3, 28 students for grades 4-6 and 30 for grades 7-12 (10.02).

The matrix was then designed to fund the number of teachers and other resources needed for the specified class sizes. For example, the accreditation standards allow kindergarten teachers to teach up to 20 students. Therefore, the 500-student prototypical school's 40 kindergarten students, would require two kindergarten teachers.

Class Size and Grade Distribution Assumptions				
Grade Level	**Pupil/Teacher Ratio Standards**		**Matrix Assumptions**	
	Avg. in Standards*	**Max. in Standards**	**# Students**	**%**
Kindergarten	20:1	20:1	40	8%
Grades 1-3	23:1	25:1	115	23%
Grades 4-6	25:1	28:1	345	69%
Grades 7-12	25:1**	30:1		
Total K-12			**500**	**100%**

*The Accreditation Standards require districts to maintain staffing levels that meet an average pupil to teacher ratio across school districts. The maximum standard sets the highest ratio any single class can have.
**Teachers for grades 7 through 12 may not be assigned more than 150 students, which averages 25 students per class for teachers teaching six periods per day.

CURRENT RESEARCH ON SCHOOL SIZE

According to a 2014 review conducted by Allan Odden and Larry Picus of the 39 state adequacy studies completed nationwide since 2003, the optimal, or most effective schools sizes, based on student performance, are 450 students for elementary and middle schools and 600 students in high schools. However, their estimates of the optimal sizes do not represent a consensus among researchers who study the effects of school size. For example, based on a review of 59 empirical studies of effects of school size on student and organizational outcomes, Leithwood and Jantzi (2009) concluded that while there is evidence that smaller schools can be advantageous to student performance in elementary schools, there are findings that larger high schools benefit students who are successful academically because of greater resources and academic opportunities. Based on their review, Leithwood and Jantzi (2009) recommended 300 students for elementary schools with high concentrations of poverty, and 500 students for elementary schools with either a heterogeneous population or relatively high concentration of economically advantaged students. They recommended a limit of 600 students for high schools with higher concentrations of poverty, and 1,000 students for high schools with fewer impoverished students.

A comprehensive review of the literature on school size reveals that the relationship between school size and outcomes, such as academic achievement and high school graduation or career readiness, is complicated by several confounding factors (e.g., Humann et al., 2015; Leithwood and Jantzi, 2009). For example, when small schools are well planned, implemented, and monitored, they can have positive impacts on student performance, particularly for students living in poverty. However, size of the school is not the exclusive, or even the primary, "driver" of either operating efficiency or student outcomes (Humann et al., 2015; Odden & Picus, 2014; Stiefel et al., 2000, 2015). Findings suggest that small schools, as commonly assumed, have greater inefficiencies, but increases in size have a point of diminishing returns due to the need for more coordination across a large school organization (Odden & Picus, 2014; Stiefel et al., 2000, 2015).

In a meta-analysis of studies of small schools Rochford (2005) found smaller schools resulted in school staff forming deeper and more supportive relationships with students, but only in schools that also changed their approaches to instruction, school structure, and community engagement. In sum, smaller schools were successful in elevating student achievement when leadership, staff, and the community worked collaboratively to make a productive learning environment – size is only one component in the process of increasing performance of students (Howley, 2002; Humann & Fermanich, 2014; Lay, 2007).

SCHOOL SIZE IN ARKANSAS

The following table shows that 68% of the schools in 2014-15 (including open-enrollment charter schools) have fewer than 500 students, while 32% have 500 or more students. That's a small change from 2004-05, the school year examined when the matrix was created. That year 71% of schools had fewer than 500 students and 29% had 500 or more. Overall schools have been increasing in size over the past decade.

School Size: Districts and Charter Schools								
# of Students	**Base for Matrix 2004-05**		**2013-14**		**2014-15**		**2015-16**	
	# of schools	**%**	**# of schools**	**%**	**# of schools**	**%**	**# of schools**	**%**
100 or fewer	58	5%	42	4%	29	3%	31	3%
101-249	229	21%	196	18%	192	18%	179	17%
250-349	228	21%	203	19%	205	19%	213	20%
350-499	271	25%	289	27%	288	27%	277	27%
500 or more	320	29%	339	32%	340	32%	343	33%
Total	**1,106**		**1,069**		**1,054**		**1,043**	

Note: Percentages do not always add to 100% due to rounding.
Data Source: Enrollment data for 2014, 2015, and 2016 come from ADE Data Center.

An individual school does not typically have grades K-12, but for the purpose of establishing a funding model, the prototypical school of 500 was based on having 40 kindergarten students, 115 students in grades 1-3 (38.3 per grade), and 345 students in grades 4-12 (38.3 per grade). This assumption is necessary because the funding model must account for the different staffing levels required for each of these grade groupings.

While the matrix was designed for schools with 500 students, its classroom teacher staffing assumptions concerning grade distribution for kindergarten through grade 12 can be compared with school districts. The following table shows that 14% of districts in 2014-15 had fewer than 500 students. The average district size in Arkansas was 1,954 ADM, and the median district size was 984 (based on prior year 3-quarter ADM). The average charter school size was 565 ADM.

2014-15 District Size				
# of Students	**# of Districts**	**%**	**# of Charters**	**%**
Less than 350	3	1%	9	50%
350-499	30	13%	1	6%
500-999	87	37%	4	22%
1,000-2,499	71	30%	4	22%
2,500-4,999	30	13%	0	0%
5,000 or more	15	6%	0	0%
	236		18	

Data Source: 2014-15 State Aid Notice, ADE

The following tables show that the original matrix assumptions regarding the number of students per grade continues to closely match actual district and charter school data.

District Students by Grade								
	Basis for Matrix		**2013-14**		**2014-15**		**2015-16**	
	# of Students	**%**	**# of Students**	**%**	**# of Students**	**%**	**# of Students**	**%**
Kindergarten	40	8%	39,216	8%	37,717	8%	36,584	8%
Grades 1-3	115	23%	109,958	24%	111,652	24%	111,652	24%
Grades 4-12	345	69%	315,483	68%	315,229	68%	315,229	68%

Charter Students by Grade								
	Basis for Matrix		**2013-14**		**2014-15**		**2015-16**	
	# of Students	**%**	**# of Students**	**%**	**# of Students**	**%**	**# of Students**	**%**
Kindergarten	40	8%	672	7%	777	7%	916	7%
Grades 1-3	115	23%	2,054	21%	2,203	21%	2,621	21%
Grades 4-12	345	69%	6,835	71%	7,732	72%	8,868	71%

Data Source: Enrollment Count by Grade, ADE's Data Center

SCHOOL-LEVEL STAFFING

The first component of the matrix is school-level staffing. This component is made up of 24.94 full-time classroom teachers and another 8.725 pupil support staff. This matrix component also includes one principal and one school-level secretary, for a total of 35.665 school-level full-time employees (FTEs). Funding for the total school-level personnel group ($4,528.90 in 2014-15) constitutes 69% of the per-pupil funding contained in the matrix. The school-level staffing can be broken down into three categories: classroom teachers, pupil support staff and administration.

CLASSROOM TEACHERS

The first section of the school-level staffing is classroom teachers. About 70% of the total 35.665 FTE school-level personnel funded in the matrix are classroom teachers who have direct daily interaction with students. Research has demonstrated that teachers influence student learning more than any other single factor within the school context, and the effects of teaching on student achievement are cumulative (Daley & Kim, 2010; Rand Corporation, 2012; Rowan, Correnti, & Miller, 2002).

Statute and Standards

ADE's accreditation standards limit class sizes to a maximum of 20 students per kindergarten class, 25 students for grades 1-3, 28 students for grades 4-6 and 30 for grades 7-12. Teachers for grades 7-12 may not be assigned more than 150 students, which averages 25 students per class for teachers teaching six periods per day. (10.02)

Grade Level	Max Pupil/Teacher Ratio in Standards
Kindergarten	20:1
Grades 1-3	25:1
Grades 4-6	28:1
Grades 7-12	30:1

Districts must also ensure that all teaching personnel hold a valid Arkansas license and that they meet the licensure requirements for the position to which they are assigned (15.03.1 and 15.03.2). Licensure requirements vary by the grade level and the subject being taught.

Meeting the Requirements

No district or school was cited in 2014-15 for inadequate pupil-teacher ratios. A total of 104 schools had violations for classroom teachers who were not appropriately certified to teach the field they were teaching. ADE rules allow teachers to teach a subject in which they are not certified for up to three years if they are working toward completing the requirements under an Additional Licensure Plan (ALP). Districts are cited for each teacher teaching out of area during the second and third year he/she is working under an ALP. Districts are placed in probationary status after the third year.(24.01)

Subject	Violations*
Math	46
English/Reading	13
Social Studies	11
Science	23
Gifted and Talented	27
P.E., Arts and Music	12
Other	27

*Violations sum to more than 104 because some schools had violations in more than one area.

STAFFING IN THE MATRIX

The matrix provides funding for 24.94 classroom teachers per 500 students. Classroom teachers are divided into two categories in the matrix: core teachers and non-core teachers.

Core teachers include teachers whose primary responsibility in lower grades is to serve as the primary classroom teacher. In higher grades, core teachers teach in one or more of four academic areas: language arts, math, science, and social studies.

The staffing levels established in the matrix were developed in Picus and Associates' original 2003 funding study based on the average class size staffing requirements established by ADE's Rules Governing Standards for Accreditation of Arkansas Public Schools and School Districts (state accreditation standards).

In 2003, the Joint Committee on Educational Adequacy also considered the recommendations from local panels of education professionals and research on best practices to calculate adequate staffing levels. The resulting matrix staffing and funding levels were confirmed in the subsequent 2006 study and were components of the funding system that the Arkansas Supreme Court found constitutional.

Matrix Item		Type	Average Class Size	# of Students in Matrix	FTE Teachers in Matrix
Classroom Teachers	Core	Kindergarten	20	40	2.0
		Grades 1-3	23	115	5.0
		Grades 4-12	25	345	13.8

The second group, referred to in this report as **non-core teachers**, includes educators who teach physical education, art, or music (PAM), or other electives. These teachers have also been called "specialist teachers."

The 2003 and 2006 Picus and Associates studies recommended that the state calculate the number of non-core teachers needed at 20% of the total core academic teachers. The consultants reasoned that core teachers need one period per day for collaborative planning and professional development, which they could receive when students are in elective classes. Arkansas state law requires districts to allow each teacher at least 200 minutes per week to schedule time for

conferences and instructional planning. The planning time must occur in increments of no less than 40 minutes during the instructional day (§ 6-17-114).

The 20% calculation was based on a regular five-hour teacher instructional day at the elementary level and five-period day at the high school level. Twenty percent of 20.8 core teachers is 4.16 (4.14 is the number in the matrix as a result of rounding adjustments) non-core teachers per 500 students.

Matrix Item		Type	FTE Teachers in Matrix
Classroom Teachers	Core	English Language Arts, Math, Social Studies and Science	20.8
	Non-Core	Physical Education, Art, Music and other electives	4.14, or 20% of Core

Statute and Standards

State accreditation standards require districts to provide instruction to all elementary and middle school students (K-8) annually in each of the subject areas listed in the table below. For high school students, districts are required to teach the number of units listed in each subject in the table below for a total of 38 units. Act 187 of 2015 required each public high school to offer a course in computer science beginning in 2015-16.

K-Grade 8	Grades 9-12	
Language Arts	Language Arts	6 units
Math	Math	6 units
Social Studies	Social Studies	4 units
Science	Science	5 units
Tools for Learning (e.g., research skills)	Computer Applications	1 unit
Fine Arts	Fine Arts	3.5 units
Career & Technical Education (Grades 5-8 only)	Career & Technical	9 units
Practical Living Skills/Career Exploration (K-4 only)	Computer Science	1 unit*
Physical Education	Economics	0.5 units*
Health & Safety Education	Health & Safety	1.5 units
	Foreign Language	2 units

*The total units listed above sum to 39.5 units. However, districts can count 0.5 units of economics and 1 unit of computer science as fulfilling one of the other required units (e.g., social studies or math) if the teacher is appropriately licensed.

State law further specifies that elementary schools (grades 1-6) must provide 40 minutes of visual arts instruction and 40 minutes of music instruction each week to students (§ 6-16-130), or about 2% each of the 30 hours of required weekly instructional time. Middle school students (grades 7 and 8) are required to take visual or performing arts instruction, but the number of minutes of instruction the school is required to provide is not specified in statute.

Until the 2015-16 school year, elementary and middle schools (grades K-8) were required to provide 60 minutes per week of physical education, or about 3% of the total required instructional hours (§ 6-16-132). Act 1079 of 2015 reduced that time requirement to 40 minutes per week.

Meeting the Requirements

Fifteen high schools failed to teach all of the required 38 units in 2014-15, with a total of 19 separate violations. One school was cited for failing to provide the full 60 minutes of P.E. that was required in 2014-15.

Subjects Not Taught	Violations
Math	5
Science	4
Social Studies	2
P.E., Art or Music	2
Other	6

CURRENT RESEARCH ON CLASS SIZE

CORE TEACHERS

In 2014, the Education Committees again asked consultants Allan Odden and Larry Picus to examine Arkansas's education finance system. In that Desk Audit, Odden and Picus noted that class size is the most expensive decision school leaders make. They currently recommend class sizes of 15 students for grades K-3 and 25 students for grade 4-12. Their current model for a 500-student prototype school is 2.67 core teachers for kindergarten, 7.66 core teachers for grades 1-3, 13.79 core teachers for grades 4-12 (Odden et al., 2014) for a total of 24.12 core teachers.

The Tennessee STAR study, a randomized controlled experiment, compared classes with approximately 15 kindergarten students to classes of about 24 kindergarten students (Finn & Achilles, 1999; Mosteller, 1995). This study found that students in smaller classes had higher achievement than those in the larger classes, and the effects were larger for low-income and minority students (Finn, 2002; Krueger, 2002). This single study persuaded many researchers and policy-makers that smaller classes do make a difference in achievement because it used "gold standard" research methods.

However, even if the STAR study is entirely reliable, there is no guarantee its results would be replicated in a different state with teachers who may have dissimilar levels of education, experience, salaries, and working conditions. Furthermore, Hanushek (2002) has argued, based on his review of research, that teacher quality is much more important than class size in affecting student outcomes. His contention has been that class size reduction is very expensive, and that too often little attention has been given to alternative and more efficient uses of funding. He does concede that class reductions have a positive impact on student performance under certain circumstances – mainly in schools with high concentrations of poverty – but he maintains high-quality teaching is a more cost-effective approach.

In their recent Desk Audit for Arkansas, Odden et al. (2014, p. 24) concluded, "We consistently recommend that states fund all other elements of the EB [evidence-based] model before putting funds into the class size recommendations… We have made this recommendation because research shows many other components of the EB model are more cost effective in terms of improving student performance – particularly for improving the performance of struggling students."

STATE RANKING: CLASS SIZE

The U.S. Department of Education's National Center for Education Statistics (NCES) calculates the average class size in each state each year. The most recent data available is for 2011-12. Average class size represents the average number of students assigned to a class for instruction. With an average class size of 20.4 in the elementary grades, Arkansas ranks 9th among the 16 Southern Regional Education Board (SREB) states and 5th among surrounding states.

Elementary Grades (Pre-K-Grade 5)

SREB States	Avg. Class Size	SREB States	Avg. Class Size
1. Tennessee	17.7	9. Virginia	20.4
2. Texas	18.2	11. Oklahoma	20.7
3. West Virginia	18.7	12. Georgia	21.0
4. North Carolina	18.8	**U.S. Average**	**21.2**
5. Louisiana	19.0	13. Mississippi	21.6
6. South Carolina	19.1	14. Kentucky	23.3
7. Alabama	19.2	Maryland	NA
8. Delaware	20.3	Florida	NA
9. Arkansas	**20.4**		

Surrounding States	Avg. Class Size
1. Tennessee	17.7
2. Texas	18.2
3. Louisiana	19.0
4. Missouri	20.2
5. Arkansas	**20.4**
6. Oklahoma	20.7
U.S. Average	**21.2**
7. Mississippi	21.6

In the higher grades, Arkansas's average class size ranks 6th among SREB states and 4th among surrounding states.

Secondary Grades (Grades 6-12)

SREB States	Avg. Class Size	SREB States	Avg. Class Size
1. Mississippi	22.8	9. South Carolina	26.0
2. Louisiana	23.4	10. Kentucky	26.6
3. Oklahoma	23.7	11.Tennessee	26.9
4. Virginia	23.8	11.Texas	26.9
5. West Virginia	24.0	13. Alabama	27.4
6. Arkansas	**25.4**	14. Georgia	27.5
7. North Carolina	25.8	Florida	NA
7. Delaware	25.8	Maryland	NA

Surrounding States	Avg. Class Size
1. Mississippi	22.8
2. Louisiana	23.4
3. Oklahoma	23.7
4. Arkansas	**25.4**
5. Missouri	26.8
6. Tennessee	26.9
6. Texas	26.9

Source: National Center for Education Statistics, Table 209.30 Highest degree earned, years of full-time teaching experience and average class size for teachers in public elementary and secondary schools, by state: 2011-12. http://nces.ed.gov/programs/digest/d13/tables/dt13_209.30.asp

ACTUAL STAFFING PATTERNS

The APSCN data system does not allow for analysis of classroom teacher full-time employees (FTEs) by the type of courses they teach. Therefore, the data in this report include both core and non-core teachers. The average number of districts' classroom teachers paid for using foundation funds is just slightly lower than the staffing level established in the matrix. The following table compares the number of classroom teachers in the matrix with the average number of classroom FTEs paid from foundation funds. Analysis of charter schools' foundation funded staffing levels has been excluded from this report due to an anomaly with the way charter school FTEs are recorded in APSCN.

Classroom Teachers		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	24.94	24.71
2014-15	24.94	24.79

Large districts use foundation funding to employ about 5.6 fewer teachers per 500 students than small districts. This may result from larger districts' ability to gain greater efficiencies with more students. There was less difference among the numbers of teachers employed by districts of differing levels of poverty. High-poverty districts had an additional one half of a classroom teacher funded by foundation funding above the districts with the lowest poverty level.

By District Size		By Poverty Level	
Districts	2014-15 Foundation Paid Staff Per 500	Districts	2014-15 Foundation Paid Staff Per 500
Small (750 or Less)	28.27	Low Poverty (>70%)	24.78
Medium (751-5,000)	25.65	Medium Poverty (70%-<90%)	24.79
Large (5,001+)	22.69	High Poverty (90%+)	25.35

STATE RANKING: PUPIL/TEACHER RATIO

NCES calculates each state's pupil-to-teacher ratios. This is simply a calculation of the total number of students (including pre-kindergarten students) divided by the total number of teachers, regardless of class assignment. The most recent data for this measure come from 2013-14. Using this measure, Arkansas ranks 2nd among surrounding states and 1st among SREB states, with one teacher for every 14.03 students. Nationally, Arkansas ranks behind just 15 other states and Washington, D.C. When pre-kindergarten teachers and students are eliminated from the equation, Arkansas's ratio drops to 13.78 students per teacher.

Surrounding States	Pupil/Teacher Ratio
1. Missouri	13.78
2. Arkansas	**14.03**
3. Tennessee	15.09
4. Mississippi	15.25
5. Louisiana	15.32
6. Texas	15.40
7. Oklahoma	16.24

Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Public Elementary/Secondary Education Survey", 2013-14 v.1a.

SREB States	Pupil/Teacher Ratio
1. Arkansas	**14.03**
2. Delaware	14.03
3. West Virginia	14.06
4. Virginia	14.14
5. Maryland	14.78
6. Tennessee	15.09
7. Mississippi	15.25
8. Florida	15.30
9. Louisiana	15.32
10. Texas	15.40
11. North Carolina	15.41
12. South Carolina	15.49
13. Georgia	15.75
14. Alabama	15.82
15. Kentucky	16.20
16. Oklahoma	16.24

COST OF CLASSROOM TEACHERS

BACKGROUND

During the Lake View lawsuit, the courts cited Arkansas's comparatively low teacher salaries and wide wage disparities among districts in the state. In 2003, the Arkansas General Assembly addressed these concerns by passing new taxes to generate additional funding for a variety of educational reforms, including a raise for teachers. Act 59 of the Second Extraordinary Session of 2003 raised the statutory minimum salary nearly 26% and increased the other steps of the salary schedule by 20-25%. For 2004-05, the average salary used in the matrix formula was set at $39,000 and each subsequent year through 2014-15, a cost-of-living adjustment has been applied.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the statutory minimum teacher salary and increasing the per-student foundation funding rate for classroom teachers by 0.84% each year for FY16 and FY17. Additionally, Act 1087 of 2015 increased the minimum teacher salary from $29,244 to $30,122 in 2015-16 and $31,000 in 2016-17. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for classroom teachers:

	2016	2017
Per-Student Rate	$3,175.51	$3,202.10
% Change	0.84%	0.84%

COMPONENTS OF THE TEACHER SALARY IN THE MATRIX

For school-level staff, the matrix specifies not only the numbers of needed employees, but how much those employees typically cost. The 2014-15 matrix used a base salary for teachers of $50,256. An additional 22% of that amount is added for fringe benefits [14% for retirement; 8% for Social Security, Medicare, unemployment, and workers' compensation; and a flat rate of $1,818 for health insurance ($150 for the first six months and $153 for remaining six months)]. Act 995 of 2015 called for the district contribution for employees participating in the state school employees' health insurance plan to increase annually "by the same percentage that the legislature increases the per-

student foundation funding amount." Act 1446 of 2013 gave the Arkansas Teacher Retirement System the authority to increase the employer contribution percentage to 15%, but system trustees have opted to continue charging 14%.

	2014-15
Teacher Salary in Matrix	$50,256
Retirement	$7,036
Social Security, Medicare, Unemployment, Workers' Compensation	$4,020
Health Insurance	$1,818
Total = Salary + Fringe	**$63,130**

This total compensation amount of $63,130 is multiplied by the 24.94 classroom teachers needed for a 500-student school. On a per-student basis [calculated as ($63,130*24.94)/500], classroom teacher compensation in the matrix provides about $3,149 per student.

The actual average teacher salary for school districts for 2014-15 was $48,575, or $1,681 below the salary provided through the matrix.[1] (This actual average salary includes teachers paid with districts' foundation funds as well as teachers who are paid with other funding sources, excluding federal funds. It also includes some educators, such as special education teachers, who are included in other parts of the matrix.)

In 2014-15, the majority of districts (209 of the 236 districts) had averages below the teacher salary in the matrix. In other words, the funding districts received exceeded the salaries they actually paid in nearly 89% of districts in the state. Additionally, higher salaries in larger districts appear to be driving the statewide average salary higher. The 10 districts (4% of all districts) with the highest teacher salary averages employ 8,052 (24%) of the FTE teachers in districts.

The average teacher salary among charter schools in 2014-15 was $37,989, or $12,267 less than the salary level used in the matrix. Thirteen of the 18 open-enrollment charter schools operating in 2014-15 had been granted waivers from the statute setting the minimum teacher salary schedule.[2] As a result, these charter schools were not required to pay the minimum salary of $29,244.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools collectively spent nearly $1.37 billion of their foundation funds on classroom teachers. This equates to approximately $2,909 per student.

Classroom Teachers: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$1,443,171,152	$1,337,051,851
2014-15	$1,483,892,496	$1,370,865,591

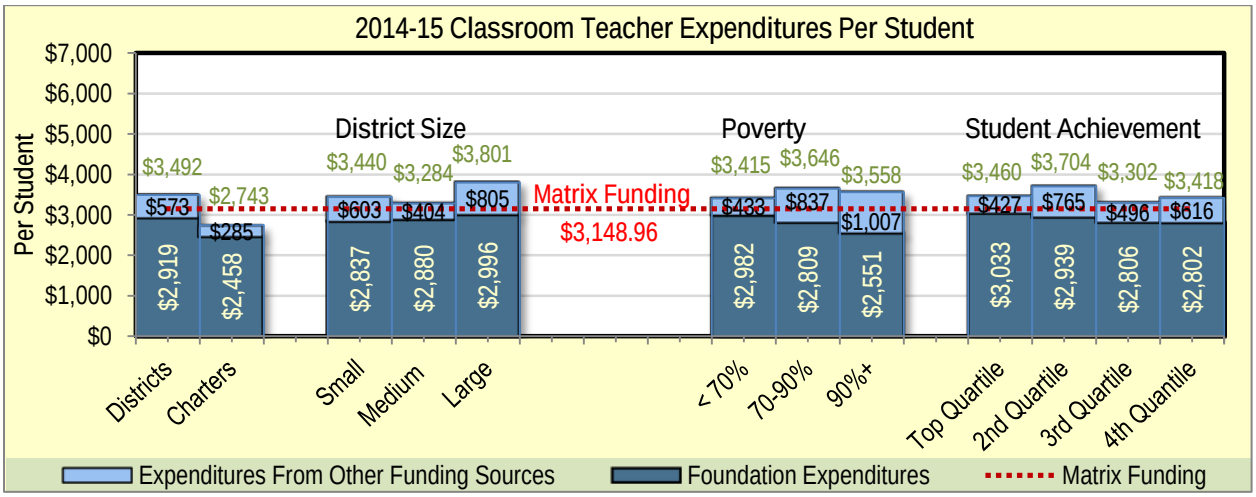
Traditional school districts spent about $2,919 per student for classroom teachers using foundation funds, or about $230 less than the foundation funding rate. Open-enrollment charter schools spent $2,458 per student, or about $691 less than the matrix amount.

While large districts employed fewer teachers using foundation funding than smaller districts, they actually spent more per student on those teachers, as shown in the following chart. This reflects the higher salaries that larger districts tend to pay. High-poverty districts spent less of their foundation funding on classroom teachers than lower poverty districts. This may be a reflection of the other types of funding that high-poverty districts have to spend on teachers' salaries, including NSL state categorical funding. In fact, in overall spending (foundation and other types of funds), the high-poverty districts actually outspent the low-poverty districts.

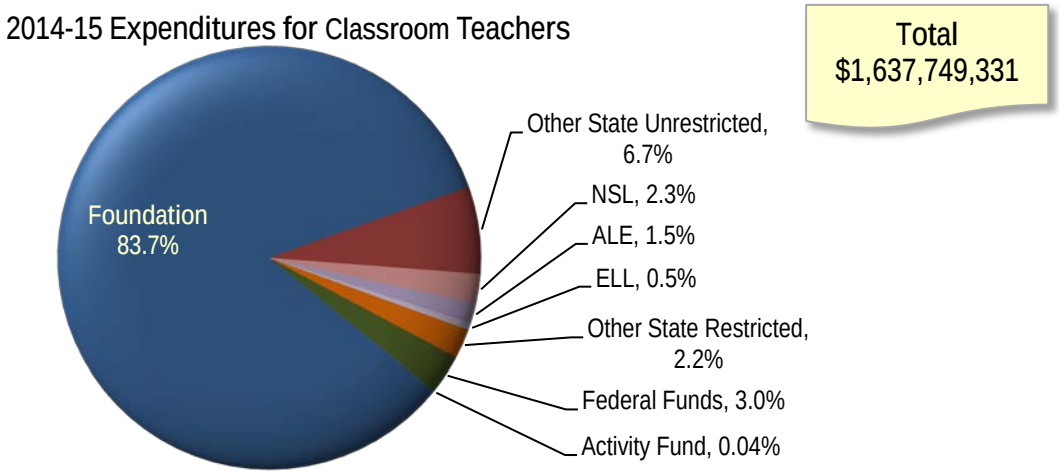
[1] ADE, 2014-15 Annual Statistical Report, retrieved at http://www.arkansased.gov/public/userfiles/Fiscal_and_Admin_Services/Publication%20and%20reports/ASR/2014-2015_Annual_Statistical_Report.pdf

[2] Griffin, M., ADE, June 6, 2015 email

The pattern of per-student spending based on district student achievement level follows a pattern similar to the spending based on concentrations of poverty. The lowest achieving districts spent less foundation funding per student on classroom teachers than the highest achieving districts, but per-student expenditures for classroom teachers from all funding sources were about the same. All of the districts in the highest poverty group are also in the lowest achieving group.



In addition to foundation funding, districts and charter schools receive a variety of other sources of funding they can use for teacher salaries. Districts and charter schools used foundation funding to pay for nearly 84% of the total cost of classroom teacher salaries, but they also used another $266.9 million in other types of funding to pay for teachers. The chart below shows the district expenditures for classroom teachers by the type of funding used.



STATE RANKING

NCES provides data on total expenditures for the salaries of instructional employees in each state, including regular and part-time teachers, teacher aides, homebound teachers and substitute teachers. The most recent data available for all states are from 2012-13. According to the NCES data, Arkansas schools spent $3,710 per student on instructional staff salaries in 2012-13. (The enrollment data used to calculate the per-student instructional staff expenditures include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Per-Student Expenditures for Instruction Staff Salaries: Arkansas's Rank
All States and Washington D.C. (51)	33rd highest
SREB States (16)	9th highest
Surrounding States (7, including AR)	4th highest

INSTRUCTIONAL FACILITATORS

An instructional facilitator is a staff member who helps teachers plan, develop and evaluate instruction. Instructional facilitators may be referred to as "academic coaches," "specialists" and "curriculum supervisors." Among their many responsibilities, instructional facilitators perform the following functions:

- Demonstrate lessons in curriculum and teaching techniques for classroom teachers and others.
- Facilitate communication about research-based instructional practices and student achievement between and among teachers, within and across grade levels.
- Assist in the implementation of the components of the Arkansas Comprehensive School Improvement Planning (ACSIP) process.
- Plan and provide professional development for classroom teachers by conducting formal workshops, group discussions and one-on-one mentoring.
- Assist teachers in analyzing classroom and state assessment data to inform instruction.

Instructional facilitators play a critical role in organizing and facilitating professional learning communities, modeling instruction, observing teaching, and providing feedback based on classroom observation (Cornett & Knight, 2008; Odden, 2009).

STAFFING IN THE MATRIX

The instructional facilitator line of the matrix funds 2.5 employees. Those 2.5 staff members allow for a half-time assistant principal (.5 FTE) and a half-time technology coordinator (.5 FTE).

BACKGROUND

In 2003, Picus and Associates recommended providing funding for **2.5 instructional facilitators** per 500 students. They noted that instructional facilitators "coordinate the instructional program, and provide the important ongoing coaching and mentoring that the professional development literature shows is so critically necessary for teachers to change and improve their instructional practice" (Picus, 2003, p. 23). They also noted that "[c]urriculum and instructional adaptation requires the support of a specially trained coach at the building level" (Picus, 2003, p. 30).

Statute and Standards

School districts are not required to employ instructional facilitators or curriculum supervisors. Teachers who serve as instructional facilitators are not required to have any special licensing beyond the standard teaching license. The state can grant an endorsement for teachers who want to add it to their license. Just nine people in the state have an instructional facilitator endorsement.

A position similar to an instructional facilitator is a curriculum administrator or curriculum supervisor. Individuals who serve as curriculum administrators may have a curriculum administrator license, in addition to their standard teaching license. Districts are not required to hire licensed curriculum administrators, but if they enter an employee in the APSCN system as a curriculum administrator, that individual must have an appropriate license. There are currently 1,405 licensed curriculum program administrators and curriculum specialists, according to ADE.[3]

Meeting the Requirements

One district was cited for a curriculum supervisor who was inadequately licensed in 2014-15.

[3] Pfeffer, I., ADE, April 14, 2016, email.

In addition to instructional facilitators, Picus and Associates noted in 2003 that the recommended 2.5 employees in the instructional facilitator line could include two other staff positions: a technology assistant and an assistant principal.

The **technology assistant's** role would be to "provide the technological expertise to fix small problems with the computer system, install all software, connect computer equipment so it can be used for both instruction and management issues and provide professional development to embed computer technologies into the curriculum."

Statute and Standards

The current Arkansas School Facilities Manual, which contains state standards for the construction of new school facilities, calls for districts to maintain a technology support program staffing level of one technical staff person for every 150 computers. However, the Arkansas Division of Public School Academic Facilities and Transportation indicated that they have never used that particular section of the Facilities Manual because it is outside the scope of the statute defining what the Facilities Manual must include (§ 6-21-809). The Division has plans to remove the technology section (Section 5) from Facilities Manual.

Meeting the Requirements

No districts were cited in 2014-15 for issues related to technology staffing.

Assistant principals are also addressed in the instructional facilitator line of the matrix because the state accreditation standards treat them as interchangeable.

Statute and Standards

Arkansas accreditation standards require districts to employ a half-time (.5 FTE) assistant principal, instructional supervisor or curriculum specialist for schools exceeding 500 students (15.02). About 32% of schools had more than 500 students in 2014-15, so this accreditation standard would not apply to approximately 700 of the state's more than 1,000 schools.

Meeting the Requirements

Four schools were cited in 2014-15 for employing assistant principals who were inadequately licensed.

In 2003, the consultants discouraged Arkansas from including assistant principals within the matrix. "[F]ew if any comprehensive school designs include assistant principal positions," they wrote. In passing Act 59 of the Second Extraordinary Session of 2003, the General Assembly adopted the consultants' recommendation and funded a total of 2.5 employees in the instructional facilitators line of the matrix.

When the consultants were rehired in 2006, they reiterated their recommendation that Arkansas provide funding to support 2.5 instructional facilitators and specified that the staffing level for the technology assistant be calculated at .5 of the total 2.5 FTEs. They also noted that a number of school districts were not actually spending foundation funding on instructional facilitators. The consultants recommended pulling the instructional facilitator funding out of the matrix and creating a separate line of categorical funding where districts' use of the money would be restricted to that purpose.

The General Assembly adopted the consultants' recommendation to designate funding for 2.5 instructional facilitators, and discussed allowing .5 of an FTE for an assistant principal. The Legislature also opted to leave the instructional facilitator funding in the matrix, rather than breaking it out as a categorical. The instructional facilitator line has included 2.5 FTEs since that time.

Hired again in 2014, the consultants changed their position on assistant principals and recommended adding funding for an assistant principal in the principal line of the matrix. They

recommended adding 1 assistant principal for every 600 high school students, "largely for discipline and athletics."[4] This would equate to 0.26 FTEs for the prototypical district. However, the Education Committees did not recommend this change in their final 2014 Adequacy Report. The Education Committees did recommend increasing the per-student foundation funding rate for instructional facilitators by .0.84% for FY16 and FY17, reflecting a salary increase for these personnel in the matrix. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for instructional facilitators:

	2016	2017
Per-Student Rate	$318.32	$320.98
% Change	0.84%	0.84%

CURRENT RESEARCH

Although only a few states (e.g., Arkansas, New Jersey, Wyoming) explicitly provide resources for instructional facilitators, most evidence based studies conducted in other states (e.g., Arizona, Kentucky, Maine, North Dakota, Washington, Wisconsin) recommend the use of instructional facilitators or coaches (Odden et al., 2014).

Research has found noteworthy effect sizes (1.25-2.17) for instructional facilitators in professional development of teachers (Joyce & Calhorn, 1996; Joyce & Showers, 2002). Lockwood, McCombs and Marsh (2010) found academic coaches had positive impacts on student performance in reading. A study of the combined effects of academic coaching and data-driven decision-making showed improvement in both teaching skills and student achievement gains (Marsh, McCombs, and Martorell, 2010). A recent randomized controlled trial, examining the impact of academic coaching, showed significant positive student achievement gains in math, science, history, and language arts (Pianta, Allen, & King, 2011).

Odden et al. (2014) recommended in their Desk Audit for Arkansas that there be one instructional facilitator per 200 students (or 2.5 for a school of 500 students), including a .5 FTE with technology expertise.

ACTUAL STAFFING PATTERNS

The staffing level established in the matrix for instructional facilitators, curriculum supervisors assistant principals and technology assistants is about one and a half times the actual average number of employees that districts employ using their foundation funding. The following table compares the matrix number for instructional facilitators and assistant principals with the average number of FTEs for school districts. The number of FTEs districts employed using foundation funds does not include any technology assistants because APSCN lacks a employee code for that position. Districts' staffing levels are represented in the table below as lower than they actually are. However *expenditures* for technology assistants are included in the financial numbers provided later in this report.

Instructional Facilitators and Assistant Principals		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	2.5	0.98
2014-15	2.5	1.02

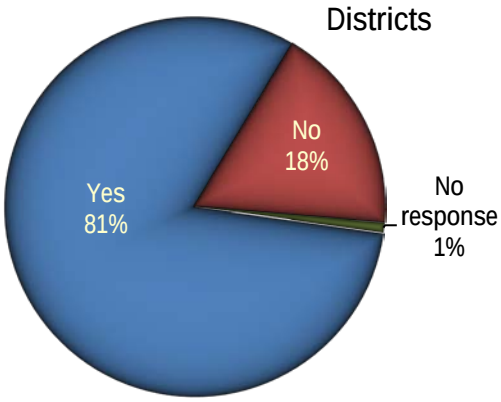
As shown in the following table, large districts tend to employ more of these staff using foundation funding than smaller districts, which may result from having larger schools that use more assistant principals. High-poverty districts employ fewer of these staff using foundation dollars than lower poverty districts, which may result from the fact that high-poverty districts have more NSL funding

[4] Picus Odden & Associates, Desk Audit of the Arkansas School Funding Matrix and Developing an Understanding of the Potential Costs of Broadband Access for All Schools, September 5, 2014, p. 42.

they can use to pay for instructional facilitators. High-poverty districts did not use less support from instructional facilitators; they just used more non-foundation funding to hire these employees.

By District Size		By Poverty Level	
Districts	**2014-15 Foundation Paid Staff Per 500**	**Districts**	**2014-15 Foundation Paid Staff Per 500**
Small (750 or Less)	0.31	Low Poverty (>70%)	1.02
Medium (751-5,000)	1.00	Medium Poverty (70%-<90%)	1.03
Large (5,001+)	1.23	High Poverty (90%+)	.74

District Survey Question: Does your district employ instructional facilitators (academic coaches, instructional specialists)? If not, why?



Of the 231 districts that responded to BLR's survey, 41 superintendents said they did not employ instructional facilitators. These districts were mostly smaller districts with enrollments ranging from about 400 to about 2,900. The average size was a little under 900 students. Of the 41 districts that do not employ instructional facilitators, 20 respondents said the reason was a lack of funding. Three districts said they needed to use their National School Lunch state categorical funds elsewhere, hinting at a possible perception that NSL dollars—not foundation funds—is the primary source of funding for these positions. Four districts said they use the instructional specialists in their education service cooperative to serve this function. Four districts said they don't hire coaches due to concerns about the impact of pulling good teachers out of the classroom. One respondent noted, "Many times, hiring instructional coaches … can deplete your local teacher talent pool, and it would be counter-productive to hire coaches/specialists and take your best teachers out of the classroom."

Three of the 17 charter schools that responded to the survey said they do not employ instructional facilitators.

STATE RANKING

NCES provides data on the number of "instructional coordinators" in each state. Under the NCES definition, instructional coordinators are staff who supervise instructional programs at the school or district. Instructional coordinators may be most comparable to what Arkansas calls curriculum supervisors. The most recent data available for all states are from 2013-14. According to the NCES data, Arkansas had .84 instructional coordinators per 500 students in 2013-14. (The enrollment data used to calculate the instructional coordinators per 500 students include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Instructional Coordinators: Arkansas's Rank
All States and Washington D.C. (51)	23rd highest
SREB States (16)	6th highest
Surrounding States (7, including AR)	2nd highest

COST OF INSTRUCTIONAL FACILITATORS

Like all school-level pupil support staff, the cost of each FTE in the instructional facilitator line is calculated using the average teacher salary of $63,130 for 2014-15 (base salary of $50,256, plus benefits). For 2.5 instructional facilitators, the matrix provides $157,825 for every 500 students or $315.67 per student.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools statewide spent nearly $81.4 million from foundation funding on instructional facilitators, assistant principals and technology assistants, about 55% of the amount provided for this purpose. This equates to about $173 per student.

Instructional Facilitators: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$144,669,425	$74,946,198
2014-15	$148,753,776	$81,351,356

For districts, this equates to about $175 per student, compared with $315.67 per student provided through the matrix. Charter schools spent just $87 per student from foundation funding for instructional facilitators, assistant principals and technology assistants.

Of the $175 per student that districts spent from foundation funding on instructional facilitators, about $126 of it (72%) was spent on assistant principals and deans of students. Collectively, districts spent nearly twice as much foundation funding on assistant principals and deans of students as what was provided in the matrix. This is likely due to the fact that, although many districts do not have any assistant principals or deans of students (98 of the 236 districts in 2014-15), but those that do, pay them considerably higher salaries than what is provided in the matrix. (Thirteen of the 18 charter schools operating in 2014-15 did not employ any assistant principals or deans of students.)

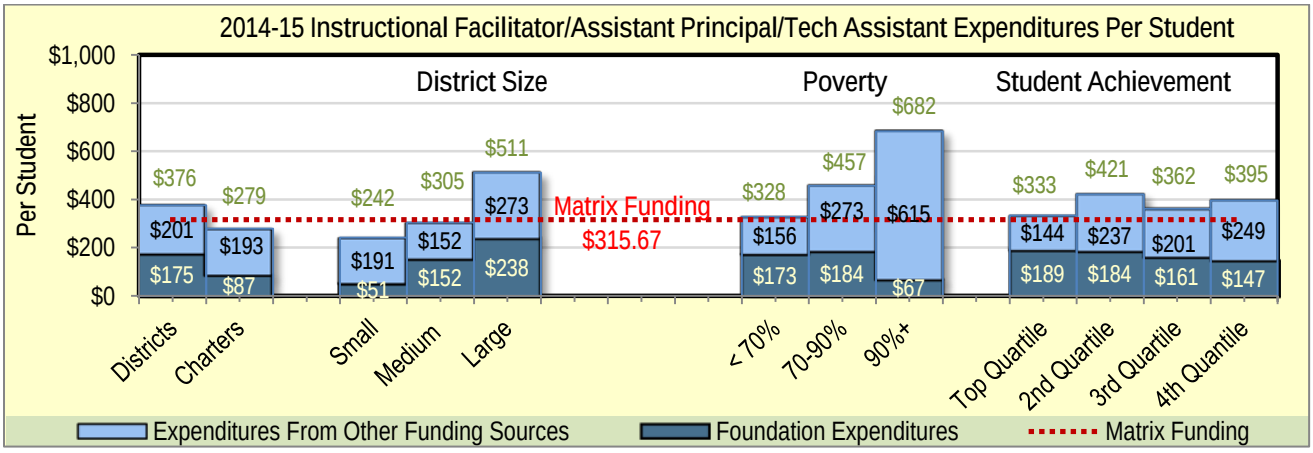
	Salary in the Matrix	District/Charter Actual Average Salary*
Assistant Principals and Deans of Students	$50,256	$72,060
Curriculum Supervisors and Instructional Facilitators	$50,256	$59,856

*Calculated using all funding sources.

Districts spent nearly $20 per student on instructional facilitators and curriculum supervisors and $29 per student on technology assistants. The fact that districts spent considerably less in this line than the matrix provides is likely the result of districts' access to other types of funding that can be used for instructional facilitators.

As illustrated in the following chart, large districts spent considerably more of their foundation funding on the instructional facilitator line than small districts, primarily due to the fact that they employ more assistant principals than small districts ($166 per student for assistant principals in large districts, compared with $10 per student in small districts).

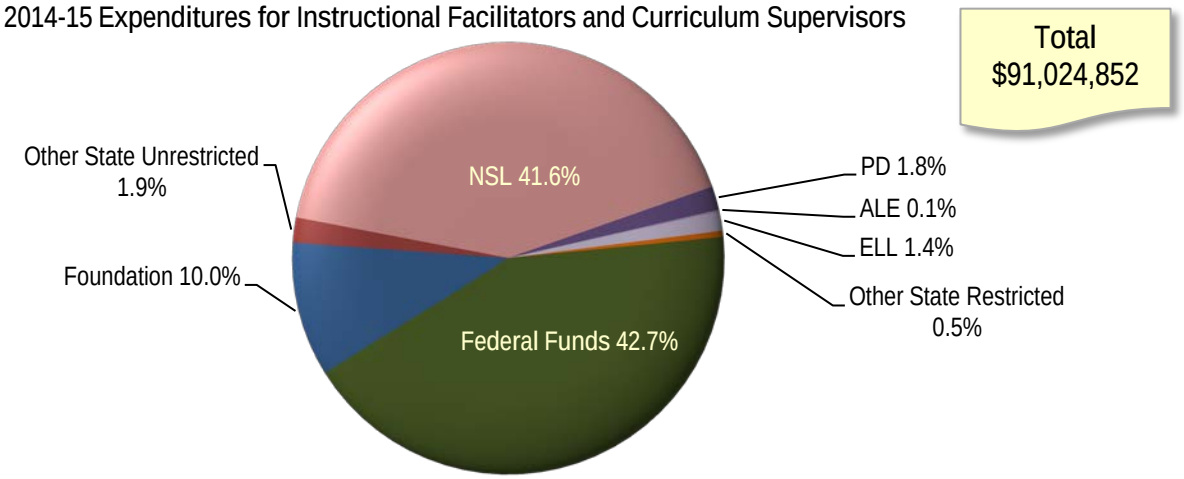
High-poverty districts spent less foundation funding on the instructional facilitator line than wealthier districts. This may result from high-poverty districts having higher amounts of other types of funding (state NSL and federal Title I) to pay for these types of employees. In fact, when examining districts' total spending (foundation funding and other funding sources), high-poverty districts spent more than twice the per-student amount that low-poverty districts spent on instructional facilitators and other staff in this matrix line.



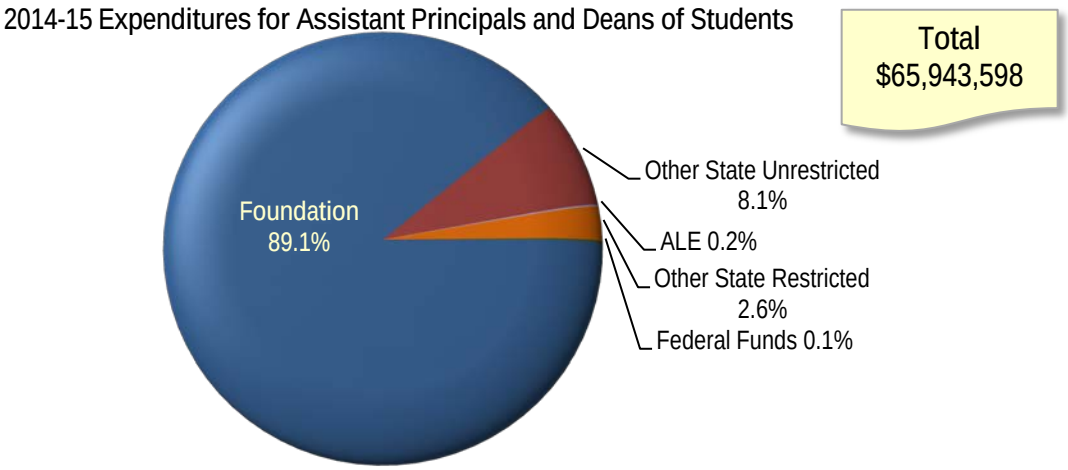
In addition to foundation funding, districts and charter schools receive a variety of other sources of funding they can use for instructional facilitators, assistant principals and technology assistants.

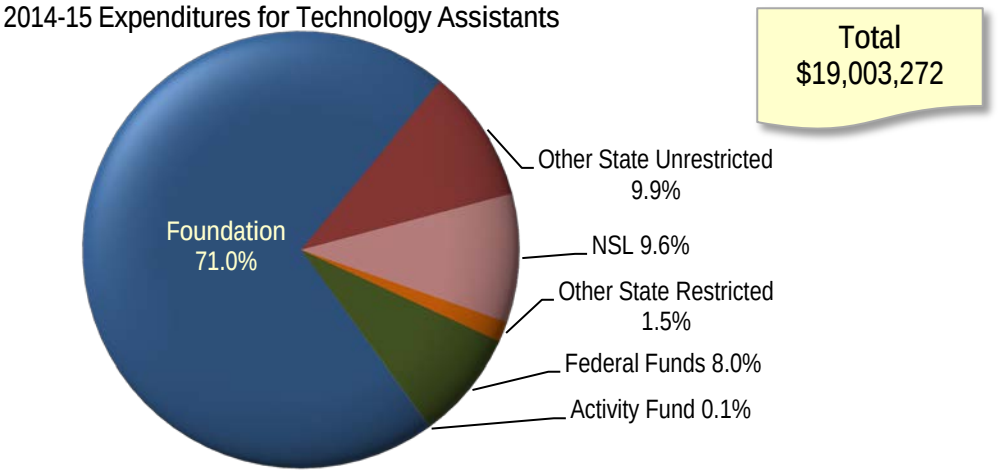
Instructional Facilitators and Curriculum Supervisors

Districts and charter schools use foundation funding to cover just 10% of their total expenditures for instructional facilitators and curriculum supervisors. Districts primarily use NSL state categorical funds and federal funds to pay for these staff.



Districts do, however, use foundation funds to cover the majority of their expenditures for assistant principals and technology assistants. Foundation funds cover 89% of assistant principal expenditures and 71% of their expenditures for technology assistants, as shown in the following charts.





SPECIAL EDUCATION TEACHERS

All districts must provide students with disabilities access to special education services under the federal Individuals with Disabilities Education Act (IDEA). Arkansas Code § 6-41-202 establishes in state statute that it is also the state's policy to provide a free and appropriate public education to students with disabilities. Every special education student has an individualized education program (IEP). An IEP is a plan or program developed to ensure that a child with a disability identified under the law receives specialized instruction and related services. There were 55,874 special education K-12th grade students in Arkansas public schools in 2014-15, making up 11.7% of the total student enrollment in the state.[5]

Statute and Standards

Districts are required to operate special education programs that comply with federal law and a set of extensive state program standards (Special Education and Related Services Program Standards), separate from the general Standards for Accreditation.

Meeting the Requirements

In 2014-15, school districts received more waivers for special education teachers than for any other certified staff. More than 110 schools were cited for employing special education teachers who were not adequately licensed.

STAFFING IN THE MATRIX

The matrix provides funding for 2.9 special education teachers. These teachers are in addition to the 24.94 classroom teachers provided in the matrix.

BACKGROUND

In 2003, the Joint Legislative Committee on Educational Adequacy (Joint Adequacy Committee) determined that the matrix would fund 2.9 special education teachers for every 500 students. Because the specific needs of special education students dictate the level of staffing required, the state could not simply calculate the number of special education teachers needed based on maximum student-to-teacher staffing for special education classes.

[5] Calculation made using data retrieved from https://adedata.arkansas.gov/statewide/State/EnrollmentByGrade.aspx?year=21&search=&pagesize=10 and the ADE's special education child count data.

The Committee's consultants, Picus and Associates, originally proposed funding 2.0 special education teachers, but after receiving input from panels of Arkansas educators and ADE officials, the Joint Adequacy Committee opted to increase the number to 2.9 teachers.

Hired again in 2006, Picus and Associates affirmed the state's methodology of funding special education using a "census" approach, meaning that the funding is based on total enrollment rather than on the number of special education students. They affirmed the state's funding level for 2.9 special education teachers for "high-incidence, lower cost students with disabilities." The state also provides about $11 million in Catastrophic Occurrences funding, in addition to foundation funding, for low incidence, high-cost special education students. Since 2006, the matrix has continued to fund 2.9 special education teachers for every 500 students.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for special education teachers each year by 0.84% for FY16 and FY17, reflecting a salary increase for these teachers in the matrix. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for special education teachers:

	2016	2017
Per-Student Rate	$369.25	$372.34
% Change	0.84%	0.84%

CURRENT RESEARCH

Frattura and Capper (2007) concluded that most students with disabilities have higher academic achievement and more positive social outcomes in general education environments than in separate special programs. For example, studies have shown that about 75% of struggling readers can be brought up to grade-level reading without placement in special education programs (e.g., Borman et al., 2003).

Recognizing that, as a whole, students with disabilities are diverse and have a wide range of abilities and limitations, Odden et al. (2014) tailor their recommendations to different needs. They indicate that for many mild and moderate disabilities, effective core instruction and tutoring may prove effective in remedying problems. For students who require special programs (identified in IEPs), they continue recommending a census-based funding formula. They currently recommend one teacher and one aid for every 150 students, or 3.3 special education teachers and 3.3 special education aides for every 500 students.

ACTUAL STAFFING PATTERNS

The average number of special education teachers paid using foundation funding is just slightly more than the staffing level established in the matrix. The following table compares the matrix number for special education teachers with the average number of FTEs employed by districts using foundation funding.

Special Education Teachers		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	2.9	2.94
2014-15	2.9	2.97

There were relatively small differences in the staffing levels of district groups based on size and concentrations of poverty. Large districts and low-poverty districts had the highest special education staffing levels paid with foundation funding.

By District Size		By Poverty Level	
	2014-15 Foundation Paid Staff Per 500		2014-15 Foundation Paid Staff Per 500
Small (750 or Less)	2.66	Low Poverty (>70%)	3.01
Medium (751-5,000)	2.93	Medium Poverty (70%-<90%)	2.91
Large (5,001+)	3.10	High Poverty (90%+)	2.74

COST OF SPECIAL EDUCATION TEACHERS

Like most school-level staff, the cost of each FTE in the special education matrix line is calculated using the average teacher salary of $63,130 for 2014-15 (base salary of $50,256, plus benefits). For 2.9 special education teachers, the matrix provides $183,077 for every 500 students or $366.17 per student.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools statewide spent about $168.6 million from foundation funding on special education teachers. This equates to about $358 per student, which is almost exactly the amount funded in the matrix ($366.17).

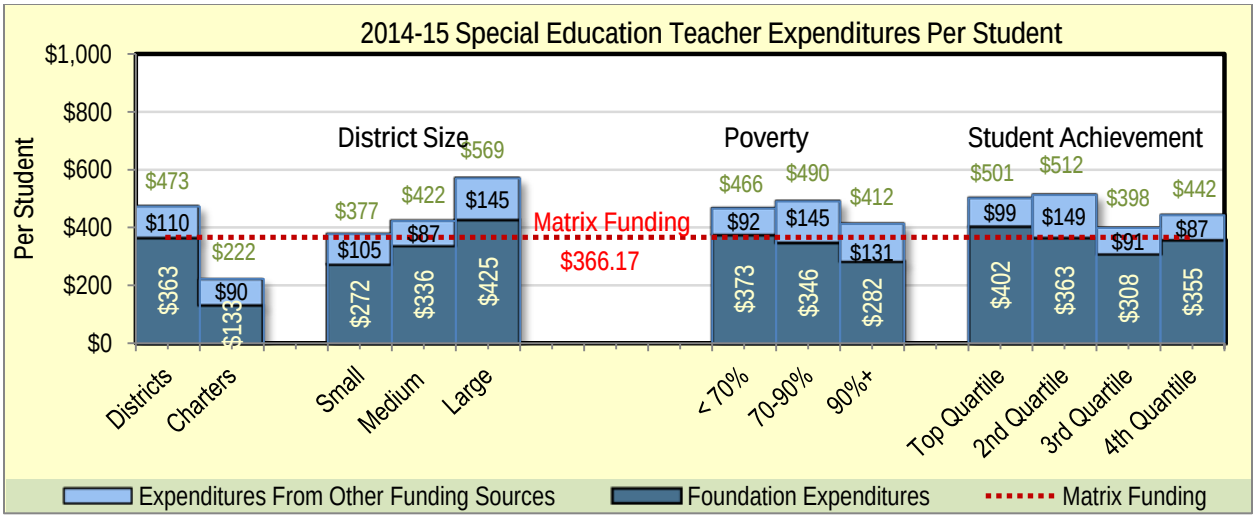
Special Education Teachers: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2013-14	$167,808,205	$164,465,305
2014-15	$172,552,872	$168,625,361

Districts paid special education teachers a salary that was, on average, about $1,000 less than the salary provided in the matrix. This average is calculated using expenditures from all funding sources, not just foundation funding.

	Salary in the Matrix	**Districts/Charters Actual Average Salary***
Special Education Teacher	$50,256	$49,050

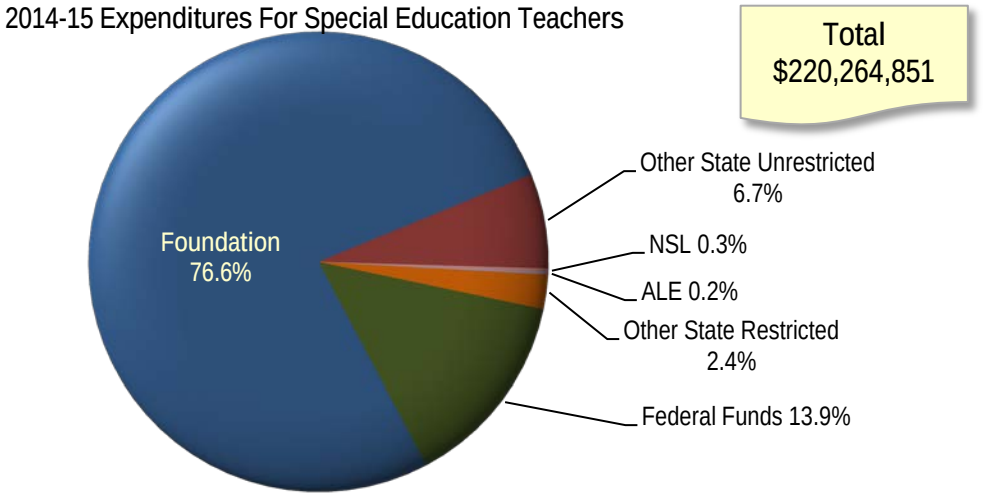
*Calculated using all funding sources.

Open-enrollment charter schools spent considerably less foundation funding per student on special education teachers than traditional school districts, as shown in the following chart. This is true when considering only foundation funding expenditures ($133 per student compared with districts' $363) as well as expenditures from all funding sources ($172 per charter school student compared with districts' $222). This lower level of spending may be due to the fact that charter schools as a group have a smaller percentage of students in special education, about 8.5%, compared with 11.7% of students in traditional school districts.



The chart also indicates that larger districts spent more from foundation funding per student than smaller districts, and districts with low concentrations of poverty spent more than districts with high concentrations of poverty. The two highest achieving groups outspent the lowest achieving districts in both foundation funds and overall spending.

Foundation funding covered about 76.6% of districts' total expenditures on special education teachers in 2014-15. Districts used other funding, including federal IDEA, Part B funds and state Catastrophic Occurrences funding to pay for special education teachers.



STATE RANKING

NCES provides data on total special education salaries in each state. The most recent data available for all states are from 2012-13. According to the NCES data, Arkansas schools spent $385.16 per student on special education instructional staff in 2012-13. (The enrollment data used to calculate the per-student special education expenditures include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Expenditures for Special Education Instructional Staff Salaries: Arkansas's Rank
All States and Washington D.C. (51)	40th highest
SREB States (16)	12th highest
Surrounding States (7, including AR)	5th highest

LIBRARY MEDIA SPECIALISTS

The school library media specialist is responsible for budgeting, purchasing and maintaining an appropriate library collection for each school. Library media specialists also ensure that access to records and resource databases are available for students. As licensed teachers, library media specialists also teach students special subject offerings.

Statute and Standards

State accreditation standards requires schools with fewer than 300 students to have a 1/2 time library media specialist. Schools with 300 to 1,499 students must have one full-time library media specialist; and schools with 1,500 or more students must have two library media specialists. (16.02.3)

State statute specifies that "only trained and certified library media services program personnel shall be assigned to carry out duties of the library media specialist" (§ 6-25-104). Library media specialists are master's degree-level licensed staff with an endorsement in school library media. Arkansas code allows library media clerks to handle clerical duties when "supervised by the library media specialist." State statute requires districts to ensure that no less than one third of a library media specialist's time is used as an "information specialist, allowing time for administrative tasks such as ordering books and materials, processing items for usage, planning finances and accountability, organizing, directing and evaluating the library media program, and other management duties" (§ 6-25-103).

Meeting the Requirements

In 2014-15, 25 schools received accreditation violations for inadequate licensure among library media specialists.

STAFFING IN THE MATRIX

The matrix provides .825 FTE library media specialists for every 500 students through 2014-15. Beginning in 2015-16, the matrix provides .85 FTE library media specialists for every 500 students. Because that school year has not ended, this report cannot provide expenditure analysis of the impact of that change.

BACKGROUND

In 2003, Picus and Associates recommended the state provide funding for library media specialists for middle schools and high schools. At the elementary level, the consultants recommended considering library media specialists as part of the 20% non-core teachers provided in the matrix. They recommended funding 1.0 FTE library media specialist for middle schools, 1.5 FTE library media specialists for high schools and no additional positions for library media specialists at the elementary level. Based on these figures, the total amount of library media specialists for the prototypical school of 500 students was set at .7 FTEs. The General Assembly adopted this recommendation and established the library media specialist staffing level at .7 FTEs.

In 2006, when the state rehired Picus and Associates, the consultants noted that the staffing level of .7 library media specialists per 500 students would not be an adequate level for districts to comply with the state accreditation standards. The consultants recommended funding 1.0 FTE library media specialist in the matrix. The General Assembly, however, opted to set the staffing level at 0.825. That staffing level is the result of an analysis that examined the number of schools in 2006 at each enrollment size: under 300 students, 300-1,500 and more than 1,500. Based on the number of schools at each level, 912.5 library media specialists were needed statewide. Based on this data, the average number of library media specialists needed was calculated to be .825 per school (912.5/1,106).

School Size	# of Schools in 2005-06	Required Library Media Specialists	Library Media Specialists Multiplied by # of Schools
Under 300	407	0.5	203.5
300-1,499	689	1.0	689
1,500 +	10	2.0	20
Totals	**1,106**		**912.5**

During the 2014 Adequacy Study, the same analysis was applied using the schools operating in 2012-13. That analysis showed that an average of 0.85 FTE library media specialists would be needed to be in compliance with state standards. (This analysis included charter schools, some of which have waivers from the library media specialist-to-student ratio.) In their 2014 recommendations, the Education Committees voted to increase the number of library media specialists from 0.825 to 0.85 FTEs beginning in 2015-16.

School Size	# of Schools in 2014-15	Required Library Media Specialists	Library Media Specialists Multiplied by # of Schools
Under 300	321	0.5	160.5
300-1,499	719	1.0	719
1,500 +	14	2.0	28
Totals	**1,054**		**907.5**

The table above shows the number of schools by enrollment for the 2014-15 school year. Using these numbers, it appears that 0.86 FTE library media specialists would be needed to serve all schools. However, these data include charter schools, many of which have waivers from the library media specialist-to-student ratio.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for library media specialists by 3.88% for FY16 and 0.85% for FY17, reflecting the increase in the number of library media specialists in the matrix as well as a salary increase. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for library media specialists:

	2016	2017
Per-Student Rate	108.23	109.13
% Change	3.88%	0.84%

CURRENT RESEARCH

Evidence generally indicates that students in schools with an endorsed, full-time library media specialist have higher performance in reading than their counterparts (Lance & Hofschire, 2012).

A review of more than 60 impact studies conducted in 22 states concluded that schools with a well-equipped library, staffed by a full-time, certified library media specialist and appropriate support staff contribute significantly to gains in student achievement (Gretes, 2013). Research confirms that access to books is a major factor in raising test scores in all forms of literacy and other subject areas. All subjects rely on literacy skills, and certified library media specialists play a critical role in literacy instruction and collaboration with teachers who teach literacy (Gretes, 2013). In Pennsylvania schools, a study found that there were incremental increases in student achievement associated with more time devoted to collaboration with teachers and to providing literacy instruction by library media specialists (Lance, Rodney, & Hamilton-Pennell, 2000).

Studies have shown that children living in poverty perform poorly on reading tests because they have limited if any access to books at home. Too often schools with high concentrations of poverty also have the least library resources (Pribesh, Gavigan, & Dickinson 2011). In a Colorado study, presence of a full-time library media specialist was correlated with higher reading scores after statistically controlling for poverty – these relationships were stronger for endorsed than non-endorsed library media specialists (Lance & Hofschire, 2012). A study in Michigan also showed that low-income students have higher performance with any library media specialist, but they achieved even more when the library media specialist was endorsed (Rodney, Lance, & Hamilton-Pennell, 2003).

Based on practices in other states (Aportela et al., 2014), Odden et al. (2014) recommended one library media specialist for every 450 K-8 students and one for every 600 grade 9-12 students (or 1.03 for every 500 students).

ACTUAL STAFFING PATTERNS

Districts used foundation funding to employ .92 FTE library media specialists in 2014-15. That number is slightly higher than the staffing level established in the matrix. The following table compares the matrix number for library media specialists with the average number of FTEs paid using foundation funds for all districts.

Library Media Specialists		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	0.825	0.90
2014-15	0.825	0.92

Large districts had lower staffing levels for library media specialists than smaller districts, which may be due to economies of scale. High-poverty districts had slightly higher staffing levels than low-poverty districts.

By District Size		By Poverty Level	
Districts	2014-15 Foundation Paid Staff Per 500	Districts	2014-15 Foundation Paid Staff Per 500
Small (750 or Less)	1.30	Low Poverty (>70%)	0.88
Medium (751-5,000)	0.98	Medium Poverty (70%-<90%)	0.98
Large (5,001+)	0.73	High Poverty (90%+)	1.17

STATE RANKING

NCES provides data on the number of library media specialists and library support staff in each state. The most recent data available for all states are from 2013-14. According to the NCES data, Arkansas had a total of .98 FTE library media staff per 500 students in 2013-14. (The enrollment

data used to calculate the library media specialists per 500 students include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Library Media Specialists: Arkansas's Rank
All States and Washington D.C. (51)	3rd highest
SREB States (16)	1st
Surrounding States (7, including AR)	1st

COST OF LIBRARY MEDIA SPECIALISTS

Like most school-level staff, the cost of each FTE in the library media specialist line is calculated using the average teacher salary of $63,130 for 2014-15 (base salary of $50,256, plus benefits). For 0.825 FTE library media specialists, the matrix provides a total of $52,082 for every 500 students or $104.18 per student.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools statewide spent about $56 million from foundation funding on library media specialists. This equates to about $119 per student, or about $15 more than the matrix amount.

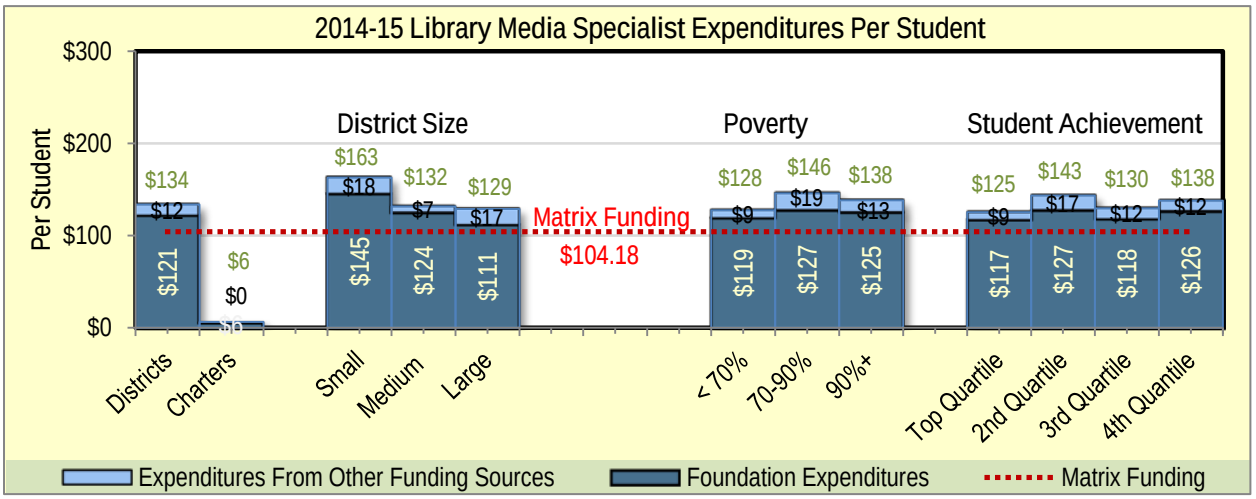
Library Media Specialists: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$47,739,366	$54,021,250
2014-15	$49,095,061	$56,041,722

Districts paid library media specialists a salary that was, on average, about $2,800 more than the salary provided in the matrix. This average is calculated using expenditures from all funding sources, not just foundation funding.

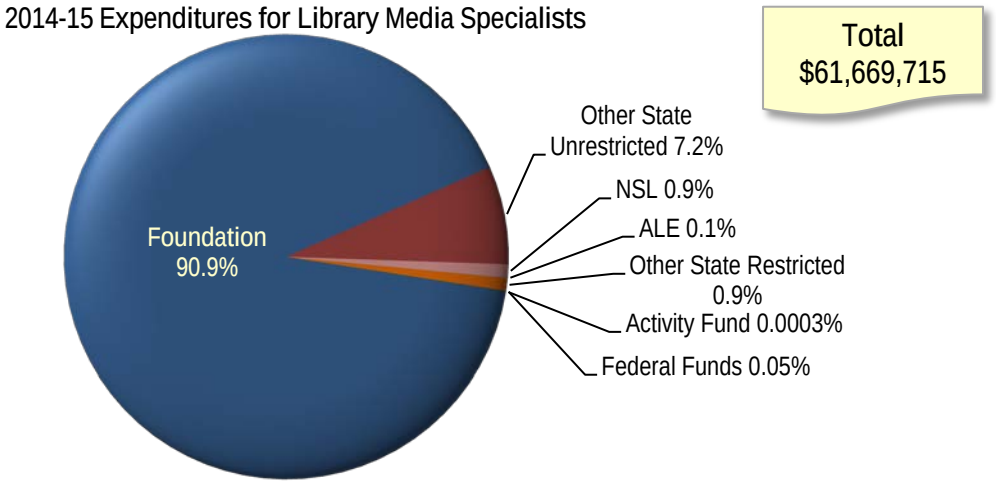
	Salary in the Matrix	District/Charter Actual Average Salary*
Library Media Specialists	$50,256	$53,049

*Calculated using all funding sources.

Open-enrollment charter schools spent just $6 per student on library media specialists, well under the amount provided in the matrix. This is primarily due to the fact that 15 of the 18 open-enrollment charter schools had waivers from the statutes or accreditation standards requiring a library media specialist. Smaller districts spent more for library media specialists than large districts, which may be due to economies of scale. There was little difference among districts based on poverty or achievement category.



In addition to foundation funding, districts and charter schools have other sources of funding they can use for library media specialists. Still, districts used foundation funding for about 91% of their total expenditures for library media specialists.



COUNSELORS, NURSES, AND OTHER PUPIL SUPPORT

This line of the matrix provides funding for guidance counselors, nurses, and other pupil support services. These positions may also include speech therapists, social workers, psychologists, and family outreach workers.

Statute and Standards

State statute requires all districts to develop and implement a plan describing how individual student services will be coordinated and provided (§ 6-18-1004). State statute specifies that districts' "student services program" must include guidance counseling services, psychological services, and health services.

Meeting the Requirements

According to the ADE's 2015 Public School Student Services Program Annual Report (published Jan. 1, 2016), 98.4% of schools have a student services plan.

The matrix establishes a staffing level of 2.5 FTEs for counselors, nurses and other pupil support. This includes 1.11 FTEs for a counselor, .67 FTEs for a nurse and.72 FTEs for other student services.

	FTEs in the Matrix
Counselors	1.11
Nurses	.67
Other Pupil Support Staff	.72
Total	**2.50**

COUNSELORS

A guidance counselor is a master's-level certified staff member responsible for a wide variety of activities. According to state law (§ 6-18-1005), guidance and counseling services include:

- Individual and group counseling.
- Orientation programs for new students.
- Academic advisement for class selection.
- Consultation with parents, faculty, and out-of-school agencies concerning student problems and needs.
- Utilization of student records and files.
- Interpretation of assessments and dissemination of results to the school, students, parents, and community.
- Following up with early school dropouts and graduates.
- A school-initiated system of parental involvement.
- An organized system of informational resources on which to base educational and vocational decision making.

- Educational, academic assessment, and career counseling, including advising students on the national college assessments, workforce opportunities, and alternative programs that could provide successful high school completion and postsecondary opportunities for students.
- Coordinating administration of the Test for Adult Basic Education or the General Educational Development pretest to students by designating appropriate personnel, other than the school guidance counselor, to administer the tests.
- Classroom guidance.
- Guidance in understanding the relationship between classroom performance and success in school.

Statute and Standards

State accreditation standards require districts to have at least one counselor for every 450 students, or approximately 1.11 FTEs per 500 students (16.01.3).

State law requires guidance counselors to spend at least 75% of their work time each month providing "direct counseling related to students" and prohibits them from spending more than 25% of their time each month on "administrative activities" [§ 6-18-1005 (b)].

Meeting the Requirements

In 2014-15, 26 schools were cited for accreditation violations stemming from guidance counselors who were not adequately licensed. None were cited for failing to meet the 450 to 1 counselor ratio.

State law requires ADE to produce an annual report describing districts' compliance with state laws regarding the provision of student services, including guidance counseling [§ 6-18-1007(a)]. To produce this report, ADE surveys school counselors for each charter and traditional public school. According to the Jan. 1, 2016, report, there were about 1,327 school counselors in the state in 2014-15. The report indicates that 190 counselors reported being assigned to more than 450 students. Of those 190 counselors, 18 reported having more than 600 students. Though some counselors are assigned more than 450 students, their districts still may be in compliance with the accreditation standards if the district as a whole meets the 450 to 1 student-to-counselor ratio. The report also noted that 79 counselors (5.4%) in 36 districts said they spend less than 75% of their time providing direct counseling. The report notes that the survey was conducted before districts administered state assessments, which typically consumes significant amounts of counselors' time.

STAFFING IN THE MATRIX

The matrix provides funding for 1.11 FTE guidance counselors for every 500 students.

BACKGROUND

In 2003, Picus and Associates recommended one pupil support staff for every 100 students eligible for free or reduced price lunch (FRL students). They argued that pupil support should increase or decrease with the level of poverty in the population. The consultants also recommended one counselor for every 500 middle school students and two counselors for every 500 high school students. For elementary schools, the consultants did not recommend any additional counselors beyond the pupil support staff based on FRL students.

The General Assembly elected to create a separate source of funding based on the number of FRL students and authorized districts to use this funding to provide certain pupil support services. The General Assembly also opted to provide pupil support services through the matrix. They established a matrix staffing level for counselors based on the state accreditation standards (16.01.3), which require districts to have at least one counselor for every 450 students, or approximately 1.11 FTEs per 500 students.

In 2006, when Picus and Associates were rehired, they endorsed the staffing levels set for pupil support in the matrix, which included 1.11 counselors, but they also recommended enhancing NSL funding with an additional 1.0 FTE for additional pupil support services staff for every 100 FRL students. The General Assembly decided against implementing this recommendation because the

Adequacy Study Oversight Subcommittee found that "funds received by school districts through state foundation funding aid and categorical funding for [FRL] students is adequate, when school districts spend those funds efficiently."[6] The staffing level for guidance counselors has remained at 1.11 since it was originally established.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for guidance counselors by 0.83% for FY16 and 0.84% for FY17, reflecting a salary increase for these personnel in the matrix. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for guidance counselors:

	2016	2017
Per-Student Rate	$141.33	$142.53
% Change	0.83%	0.84%

CURRENT RESEARCH

A number of studies show school counseling positively impacts various desirable outcomes at different grade levels. For example, Carey and Dimmitt (2012) summarize six statewide research studies in a special issue of *Professional School Counseling* that provide evidence on the relationship between positive student educational outcomes and school counseling programs, student-to-counselor ratios, counselor use of time, and specific counseling strategies. These studies indicate certain counseling activities are more impactful on particular outcomes than others, and comprehensive, data-driven school counseling programs improve a range of student learning and behavioral outcomes. Wilkerson, Perusse, and Hughes (2013) compared proficiency rates in math and literacy of Indiana schools that earned the Recognized American School Counselor Association (ASCA) Model Program (RAMP) designation with a sample of control schools. RAMP involved several counseling activities, including academic and social guidance, group work, and familial counseling. Findings indicate that the proficiency rates in both math and literacy are significantly higher in the RAMP designated elementary schools.

ACTUAL STAFFING PATTERNS

On average, districts use foundation funding to employ 1.15 FTE guidance counselors per 500 students. This staffing level is slightly more than the staffing level established in the matrix. The following tables compare the matrix number for counselors with the average FTEs for all districts.

Guidance Counselors		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	1.11	1.15
2014-15	1.11	1.15

Small districts and low-poverty districts tended to employ more counselors per 500 students using their foundation dollars.

By District Size		By Poverty Level	
Districts	2014-15 Foundation Paid Staff Per 500	Districts	2014-15 Foundation Paid Staff Per 500
Small (750 or Less)	1.22	Low Poverty (>70%)	1.16
Medium (751-5,000)	1.18	Medium Poverty (70%-<90%)	1.15
Large (5,001+)	1.09	High Poverty (90%+)	1.00

[6] Adequacy Study Oversight Subcommittee (2006). "A Report on Legislative Hearings For the 2006 Interim Study on Educational Adequacy, adopted by the House and Senate Education."

STATE RANKING

NCES provides data on the number of guidance counselors in each state. The most recent data available for all states are from 2013-14. According to the NCES data, Arkansas had a total of 1.3 guidance counselors per 500 students in 2013-14. (The enrollment data used to calculate the guidance counselors per 500 students include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Guidance Counselors: Arkansas's Rank
All States and Washington D.C. (51)	16th highest
SREB States (16)	7th highest
Surrounding States (7, including AR)	3rd highest

COST OF COUNSELORS

Like most school-level staff, the cost of each FTE in the pupil support line is calculated using the average teacher salary of $63,130 for 2014-15 (base salary of $50,256, plus benefits). For 1.11 guidance counselors, the matrix includes $140.17 per student for counselors.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools statewide spent about $76.6 million from foundation funding on counselors. This equates to about $162 per student.

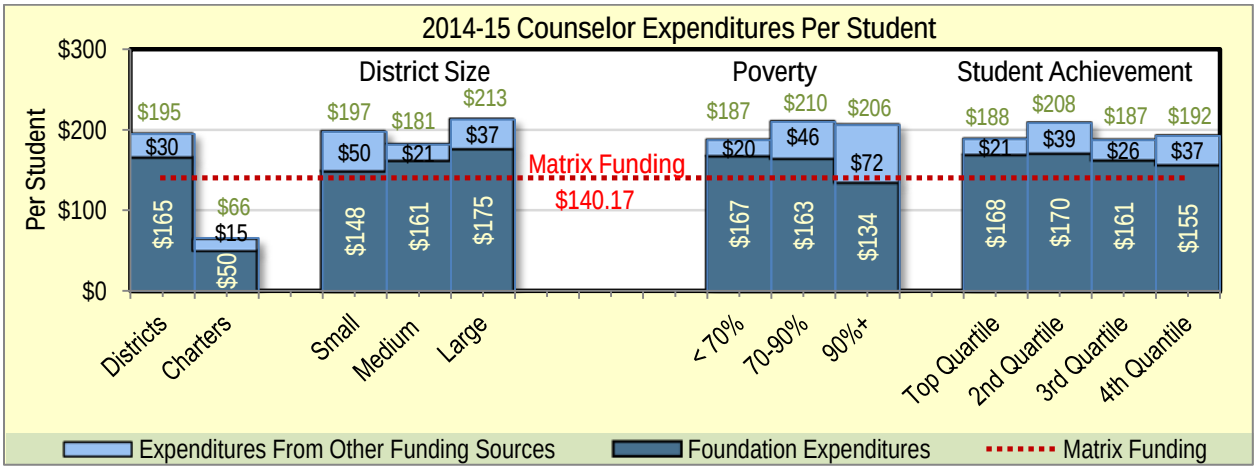
Counselors: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$64,231,148	$74,440,318
2014-15	$66,051,917	$76,558,314

Districts paid guidance counselors a salary that was, on average, about $7,000 higher than the salary provided in the matrix. This average is calculated using expenditures from all funding sources, not just foundation funding.

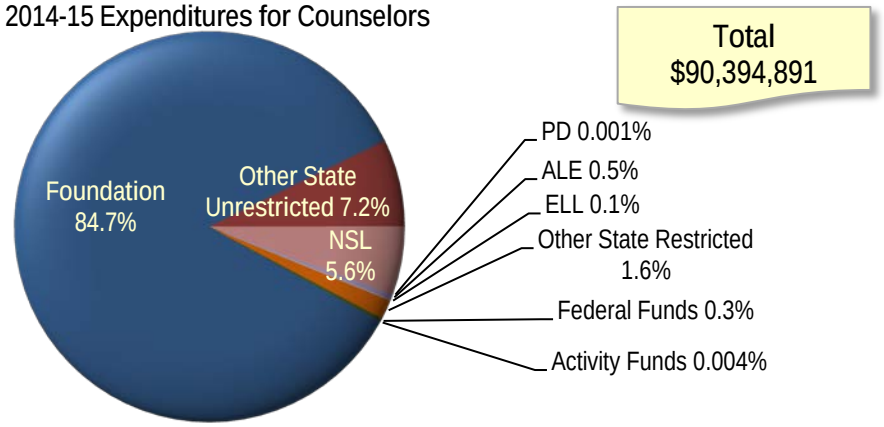
	Salary in the Matrix	District/Charter Actual Average Salary*
Guidance Counselors	$50,256	$57,335

*Calculated using all funding sources.

On a per-student basis, districts spent about $165 per student from foundation funding on guidance counselors in 2014-15, or about $25 more per student than the matrix provides. That may be due, in part, to the fact that districts pay counselors salaries that are higher than the salary provided in the matrix. Charter schools spent $50 per student from foundation funding—well below the matrix amount. This may be due to the fact that 15 of the 18 charter schools operating in 2014-15 had waivers either from the public school student services statutory requirements or from the guidance counseling accreditation standards. While larger districts spent more foundation funding per student than smaller districts, the difference in overall spending (from all funding sources) did not follow a distinct pattern. Low-poverty districts tended to pay more per student in foundation funding on guidance counselors than high-poverty districts, but high-poverty districts spent more on counselors from all funding sources. There was little difference among districts when grouped by student achievement.



Districts used foundation funding to cover 85% of their total expenditures for guidance counselors in 2014-15. In addition to foundation funding, districts and charter schools have a variety of other sources of funding they can use for counselors. The following chart shows all funding sources districts used to pay for guidance counselors.



NURSES

Nurses are essential to assessing the health of students, delivering emergency care, administering medication and vaccines, performing health care procedures, and providing health care counseling and programs.

Statute and Standards

State statute requires districts to have at least 1 nurse per 750 students (§ 6-18-706(c)(1)). The law also includes a provision that makes that requirement effective "only upon the availability of state funds." ADE's interpretation of this law has long been that funds were not made available for school nurses, and therefore the 1:750 ratio is not required in the accreditation standards. As a result, the department's standards assurance unit does not check that districts adhere to the nurse-to-student ratio.

State statute also notes that districts with "a high concentration of children with disabling conditions as determined by the State Board of Education" "should" have a nurse-to-student requirement of 1:400. In districts that "provide a center for profoundly disabled students," the ratio "should" be 1:125. [§ 6-18-706(c)(2) and (3)]. The use of the word "should" probably means these ratios are not required.

State statute also requires districts to provide health services as part of their student services program [§ 6-18-1005(a)(6)]. ADE accreditation standards require that school district's health services program be operated "under the direction of a licensed nurse" (16.03.1) and that districts provide the program with necessary facilities, equipment and materials. The standards require the health services programs to include screening, referral and follow-up procedures for all students.

Meeting the Requirements

No schools or districts were cited for accreditation violations related to the school nurse or the health services program in 2014-15.

STAFFING IN THE MATRIX

The matrix provides funding for a .67 FTE nurse for every 500 students.

BACKGROUND

Picus and Associates' 2003 report made no specific mention of school nurses, but their 2006 report noted that nurses had been included in their earlier recommendation for 1.0 FTE pupil support staff for every 100 FRL students. As mentioned above, the General Assembly adopted a staffing level of

2.5 FTE pupil support services staff with the passage of Act 59 of the Second Extraordinary Session of 2003. That same session, the General Assembly also passed Act 67, which increased the number of required school nurses from 1 per 1,000 students to 1 per 750 students. The new law also added a provision that made the statute effective "only upon the availability of state funds."

In 2006, the Adequacy Study Oversight Subcommittee specifically noted in its report that state law requires one school nurse per 750 students. The subcommittee also specified that of the 2.5 FTEs in the pupil support line of the matrix, .67 FTEs per 500 students is intended for nursing staff. Despite the fact that a portion of the matrix was designated for nursing staff, many interested parties have argued that funding was never specifically provided for nurses. ADE's interpretation of this law is that funds were never made available for school nurses. As a result, the department's standards assurance unit does not check that districts adhere to the nurse to student ratio.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for school nurses in FY16 and FY17, reflecting a salary increase for these personnel in the matrix. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for school nurses:

	2016	2017
Per-Student Rate	$85.31	$86.02
% Change	0.82%	0.84%

CURRENT RESEARCH

Across the United States, many school districts have eliminated or reduced health services provided by registered nurses (Wang et al., 2014). A case study of the Massachusetts Essential School Health Services (ESHS) program was conducted to examine the cost-benefit of school health services provided by full-time registered nurses (Wang et al., 2014). The results showed that at a cost of $79 million, the ESHS program prevented an estimated $20 million in medical care costs, $28.1 million in parents' productivity costs, and $129.1 million in teachers' productivity loss. In short, the program generated a net benefit of $98.2 million. For every dollar invested in the program, there was a benefit gain of $2.20. Eighty-nine percent of the simulation trials resulted in a net gain.

In a seminal review of research, Basch (2010) made a strong case that healthier students are better learners, and that the relationship between health and education is a missing link in school reforms to close the achievement gap. He presented evidence from several fields of study regarding the impact of health disparities on the achievement gap. Health problems are a major mechanism through which poverty has its robust effect on academic achievement (Curry, 2009; Kaminski et al., 2013). Many of these health problems are interrelated, such as food insecurity and lack of attention and engagement in school activities, and together they have a synergistic effect on achievement and attainment (Basch, 2010; Duncan & Murnane, 2011).

The National Association of School Nurses (NASN) currently recommends a nurse-to-student ratio of 1:750 in a school with all well students, 1:225 in a school that requires daily nursing services, and 1:125 in a school with complex health care needs. In its most recent position statement on school nurse staffing levels, the NASN noted that "While a ratio of one school nurse to 750 students has been widely recommended and was acknowledged in Health People 2010 (U.S. Department of Health and Human Services, 2012) and by the American Academy of Pediatrics (2008), a one-size-fits-all workload determination is inadequate to fill the increasingly complex health needs of students and school communities."[7]

[7] National Association of School Nurses, "School Nurse Workload: Staffing for Safe Care," Adopted January 2015, retrieved at

ACTUAL STAFFING PATTERNS

On average, districts used foundation funding to employ .47 FTE nurses per 500 students. This staffing level is about .20 FTEs less than the staffing level established in the matrix. The following tables compare the matrix number for nurses with the average number of FTEs for all districts.

Nurses		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	.67	.47
2014-15	.67	.47

Large districts used foundation funding to employ fewer nurses per 500 students than smaller districts, but there was little difference among the districts when grouped by concentrations of poverty.

By District Size		By Poverty Level	
Districts	2014-15 Foundation Paid Staff Per 500	Districts	2014-15 Foundation Paid Staff Per 500
Small (750 or Less)	0.71	Low Poverty (>70%)	0.50
Medium (751-5,000)	0.46	Medium Poverty (70%-<90%)	0.41
Large (5,001+)	0.44	High Poverty (90%+)	0.41

When all funding sources are considered (including foundation funding, federal funding, state categorical funding, etc.), districts employed a total of 829.73 FTE nurses in 2014-15, according to ADE analysis of APSCN data.[8] Because some districts hire additional nurses by contracting for these services, rather than hiring them as employees, the employee count may not be a complete number of school nurses. To determine how many FTE nurses districts hire by contract, the BLR's district survey asked the following question:

District Survey Question: How many FTE nurses did your district hire through purchased services in 2014-15? Do not include nurses your district employed directly in your response to this question.

Twenty-two districts responded that they contracted for a total of nearly 13 FTE nurses, and four charter schools said they contracted with 4 FTE nurses. Combined with the FTE nurses that districts and charter schools employ, there were a total of 846.63 FTE nurses statewide, or about one FTE nurse for every 562 students in the state.

According to the APSCN and survey data, 33 districts do not individually meet the required number of nurses for their student population. Most of those, however, were short by a .5 FTE or less.

COST OF NURSES

The amount of funding districts and charter schools receive for nurses is based on the average teacher salary of $63,130 (with a base salary of $50,256) in 2014-15. Districts and charter schools received $42,297 for a school of 500 students, or $84.61 per student.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools statewide spent about $21.3 million from foundation funding on nurses. This equates to about $45 per student, or nearly $40 less foundation funding per student than the matrix provides. Districts may have spent less foundation funding on nurses because they have other sources of funding to use for this purpose.

Nurses: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$38,774,831	$20,116,604
2014-15	$39,872,911	$21,287,485

https://www.nasn.org/PolicyAdvocacy/PositionPapersandReports/NASNPositionStatementsFullView/tabid/462/smid/824/ArticleID/803/Default.aspx

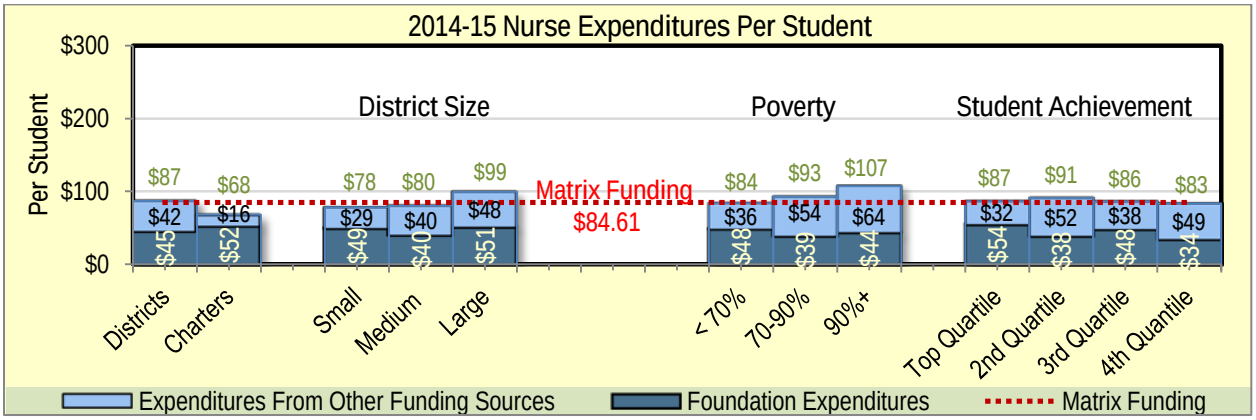
[8] Arkansas Public School Computer Network, ADE, retrieved at http://www.apscn.org/reports/hld/cycle/caja/1415/NursesFTEandSalaries.xls.

Districts paid nurses a salary that was, on average, about $15,000 less than the salary provided in the matrix. This average is calculated using expenditures from all funding sources, not just foundation funding.

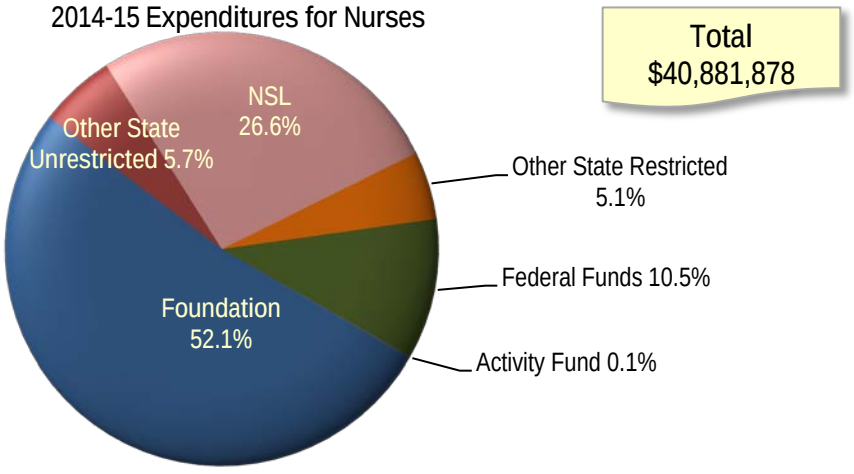
	Salary in the Matrix	District/Charter Actual Average Salary*
Nurses	$50,256	$35,166

*Calculated using all funding sources.

Few discernible patterns emerged when examining foundation funding expenditures by district size, poverty level or student achievement. Open-enrollment charter schools spent slightly more foundation funding per student than districts, but they spent less money overall. Though only seven of the 18 open-enrollment schools had waivers from the nurse-to-student ratio required by statute, all but two open-enrollment schools had a waiver from either the health services program statute or the health services program accreditation standard. Despite these waivers, most charter schools recorded expenditures for school nurses. Only two had no nurse expenditures at all, and eight had less than $10,000 worth of health expenditures.



In addition to foundation funding, districts and charter schools have a variety of other sources of funding they can use for nurses. Districts and charter schools used foundation funding to cover just 52% of their total expenditures for nurses. A little over half of the districts used state NSL funding for this purpose, thereby reducing these districts' reliance on foundation funding to employ nurses.



OTHER PUPIL SUPPORT SERVICES

Other pupil support services include psychological services, social work services, speech pathology services and audiology services. Although schools may be required to provide these services for special education students whose individualized education program (IEP) calls for them, there are no general standards requiring districts to provide these services.

STAFFING IN THE MATRIX

The matrix provides 0.72 FTE positions within the 2.5 pupil support services staff for student services personnel described under the Public School Student Services Act (§ 6-18-1001 et seq.).

ACTUAL STAFFING PATTERNS

On average, districts used foundation funding to employ .18 FTE pupil support services per 500 students in 2014-15. This staffing level is about a quarter of the staffing level established in the matrix. The following tables compare the matrix number for pupil support staff with the average staffing level for all districts.

Pupil Support Staff		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	0.72	0.19
2014-15	0.72	0.18

In 2014-15, smaller districts employed fewer student support staff using foundation funding than larger districts, and high-poverty districts employed fewer student support staff than low-poverty districts.

By District Size		By Poverty Level	
Districts	2014-15 Foundation Paid Staff Per 500	Districts	2014-15 Foundation Paid Staff Per 500
Small (750 or Less)	0.09	Low Poverty (>70%)	0.18
Medium (751-5,000)	0.15	Medium Poverty (70%-<90%)	0.20
Large (5,001+)	0.26	High Poverty (90%+)	0.08

STATE RANKING

NCES provides data on the number of student support staff in each state. Under the NCES definition, employees who provide student support services are staff "whose activities are concerned with providing non-instructional services to students." Staff in this category include attendance officers; staff providing health, psychology, speech pathology, audiology, or social services; as well as the supervisors of these employees and of transportation and food service workers. Student support staff may be most comparable to what this report has included as Arkansas's nurse and pupil support staff. The most recent data available for all states are from 2013-14. According to the NCES data, Arkansas had a total of 7.52 student support services staff per 500 students in 2013-14. (The enrollment data used to calculate the student support services staff per 500 students include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Student Support Staff: Arkansas's Rank
All States and Washington D.C. (51)	**1st**
SREB States (16)	**1st**
Surrounding States (7, including AR)	**1st**

COST OF OTHER PUPIL SUPPORT STAFF

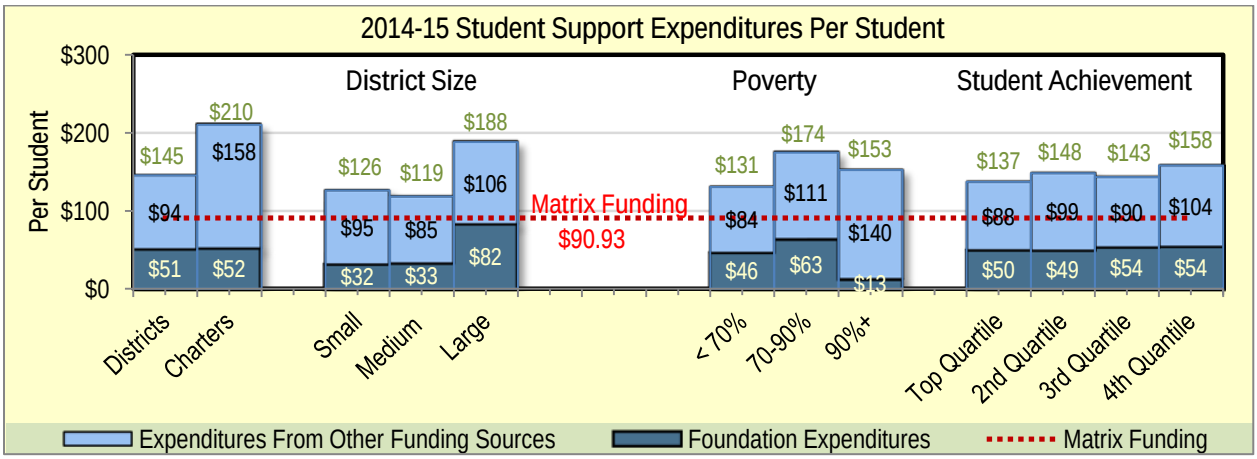
Like most school-level staff, the cost of each FTE in the pupil support line is calculated using the average teacher salary of $63,130 for 2014-15 (base salary of $50,256, plus benefits). For .72 FTE pupil support staff, the matrix provides $45,454 for every 500 students or $90.93 per student.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

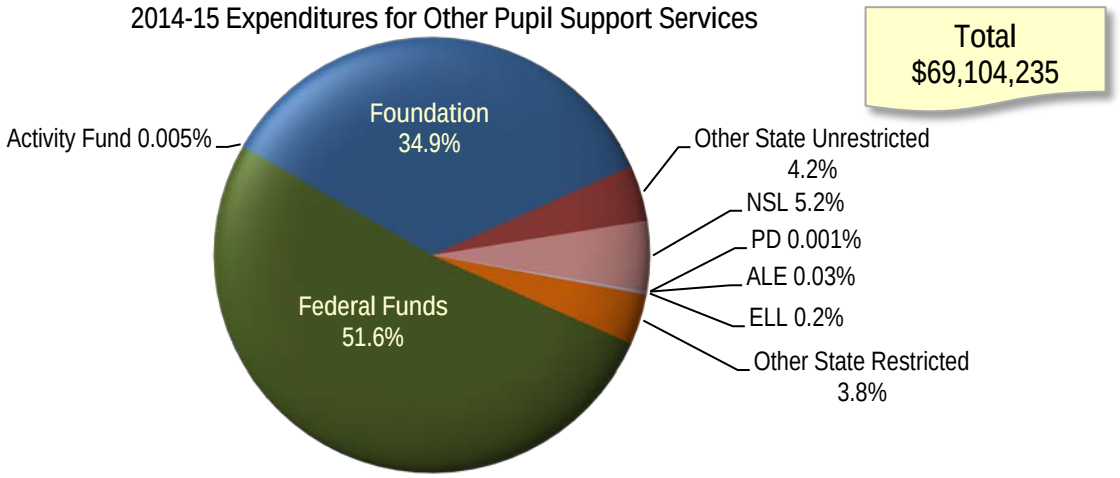
In 2014-15, districts and charter schools collectively spent about $24.1 million from foundation funding on other student support services. This equates to about $51 per student, or about $40 per student less than the matrix provides. Districts may have spent less foundation funding on student support services because they have other sources of funding to use for this purpose.

Other Pupil Support Services: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2013-14	$41,663,447	$23,054,426
2014-15	$42,847,798	$24,147,924

Large districts spent more than two and a half times the amount of foundation funding per student on student support services as smaller districts. Even considering overall spending (from all funding sources), large districts spent about 50% more per student than small districts. High-poverty districts spent a little more than a quarter of the amount of foundation funding per student as the lowest poverty group, but high-poverty districts spent more total funding per student on student support services. This suggests that high poverty groups spent less foundation funding because they had other sources of funds to use for this purpose. There was very little difference among the districts when grouped by student achievement levels.



Districts used foundation funding to cover just over a third of their student support expenditures. Districts used federal funds to cover more than half of their student support expenditures. More than half of the federal funds used ($18.6 million) were IDEA funds for special education students and another 36% ($13 million) was spent using Medicaid funding.



In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for pupil support personnel for FY16 and FY17, reflecting a salary increase for these personnel in the matrix. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for pupil support personnel:

	2016	**2017**
Per-Student Rate	$91.67	$92.44
% Change	0.82%	0.84%

SCHOOL-LEVEL ADMINISTRATION PERSONNEL

PRINCIPALS

Principals must serve as the building-level leader ensuring schools run smoothly and improve student achievement. A school principal provides not only administrative oversight for a school but also instructional leadership. Principals do this "by creating professional communities in which teachers provide considerable instructional leadership, developing professional development opportunities for teachers, signaling that instructional improvement and student achievement are core goals, and helping the school as a whole to take responsibility for student achievement increases or decreases while also managing the non-instructional aspects of the school" (Picus and Associates, 2006, p. 23).

Statute and Standards

The state's accreditation standards require districts to employ at least a half-time principal for every school, and one full-time principal for schools with 300 students or more (15.02).

Meeting the Requirements

Five schools were cited in 2014-15 for violations related to inadequate principal licensure.

STAFFING IN THE MATRIX

The matrix provides 1.0 FTE principal for every 500 students.

BACKGROUND

In 2003, Picus and Associates recommended 1.0 FTE principal for every 500 students, noting that "all comprehensive school designs, and all prototypic school designs from professional judgment studies around the country include a principal for every school unit" (Picus, 2003, p. 22). The General Assembly implemented this recommendation in the matrix formula beginning with the 2004-05 school year. In its 2006 report, Picus and Associates noted that the state's accreditation standards require districts to employ at least a half-time principal (.5 FTE) for every school and one full-time (1.0 FTE) principal for schools with 300 students or more. Still, the consultants continued to recommend providing funding for one full-time principal for a school of 500 students. They reasoned that the actual salaries paid in smaller schools are typically low enough that the salary funding provided in the matrix is adequate even for schools with fewer than 500 students. The principal line has included 1.0 FTE principal since that time.

CURRENT RESEARCH

Odden and Picus's core strategy of strong leadership, and the matrix provision of one full-time principal in every school, continues to be supported by recent literature (Chenoweth, 2008; Dufour & Marzano, 2011; Marzano, Watters, & McNulty, 2005; Odden, 2009). A full-time principal is essential to developing and facilitating the professional learning communities that have been found to be critical to turning around low-performing schools and promoting achievement gains in other schools (American Institutes for Research, 2010; Dufour & Marzano, 2011; Herman et al., 2008; Reeves, 2003). Odden and Picus' (2006) recommendation of one principal for each school is consistent with other evidence-based adequacy studies (e.g., Augenblick, Palaich, & Associates, 2011; Conley & Rooney, 2007; Odden, Picus, & Goetz, 2008), and a more general study of school staffing in Massachusetts (Massachusetts Association of Regional Schools, 2009).

ACTUAL STAFFING PATTERNS

The following table shows the number of schools (including charter schools) with fewer than 300 students, where a half-time principal is required, and those with 300 or more students, which require a full-time principal. The table indicates that the state's public schools would need a minimum of 893.5 FTE principals to meet the state accreditation standards. In 2014-15, districts employed about 1,028 FTE principals and charter schools employed about 19 using all funding sources (not just foundation funding).

School Size	# of Schools in 2015	Principals Required Per School	Total Principals Required
Under 300	321	0.5	160.5
300+	733	1.0	733
Totals	**1,054**		**893.5**

The actual number of principals districts employed using foundation funding is nearly the same as the staffing level established in the matrix. The following table compares the two.

Principals		
	Matrix FTE Number Per 500	Districts: Foundation Paid Staff Per 500
2013-14	1.0	0.99
2014-15	1.0	1.00

Compared with smaller districts, large districts used foundation funding to employ fewer principals per 500 students. This is likely due to the fact that large districts tend to have larger schools, allowing principals to serve greater numbers of students. High-poverty districts also employed more principals than low-poverty districts. This may have more to do with the small size of high-poverty districts than it does the districts' wealth.

By District Size		By Poverty Level	
	2014-15 Foundation Paid Staff Per 500		2014-15 Foundation Paid Staff Per 500
Small (750 or Less)	1.59	Low Poverty (>70%)	0.95
Medium (751-5,000)	1.08	Medium Poverty (70%-<90%)	1.08
Large (5,001+)	0.73	High Poverty (90%+)	1.30

STATE RANKING

NCES provides data on the number of school administrators in each state. This NCES category includes principals, assistant principals, as well as people who supervise school operations and coordinate school instructional activities. The most recent data available for all states are from 2013-14. According to the NCES data, Arkansas had a total of 1.75 FTE school administrators per 500 students in 2013-14. (The enrollment data used to calculate the number of school administrators per 500 students include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	School Administrators: Arkansas's Rank
All States and Washington D.C. (51)	29th highest
SREB States (16)	13th highest
Surrounding States (7, including AR)	5th highest

COST OF PRINCIPALS

Unlike other salaries discussed previously in this report, the principal salary is not based on the average teacher salary. Instead, the matrix includes a salary and benefits package totaling $99,012 per principal in 2014-15, or $198.10 per student. That amount is comprised of the following items:

- Base salary of $79,667
- Health insurance contribution of $1,818
- Additional benefits calculated at 22% of the base salary ($17,527). This is comprised of 14% for state retirement, 6.2% for Social Security, 1.45% for Medicare and .35% for unemployment and workers' compensation.

The principal salary and benefits package was originally established at $72,000 in the 2004-05 matrix, but in 2007, the Education Committees determined that the salary package had been set too low due to a miscalculation. Based on evidence presented in 2006, the Committees opted to increase the principal salary and benefits amount by 12.88% from $76,335 in 2006-07 to $86,168 in 2007-08. The salary has received an annual increase each year between 2008-09 and 2014-15 as the foundation funding rate has received annual cost of living adjustments.

In their final report of the 2014 Adequacy Study, the Education Committees recommended keeping the per-student foundation funding rate for principals at the FY15 level for FY16 and FY17, reasoning that the staffing level and salary for principals is adequate to meet districts' needs. Act 1248 of 2015 set the per-student foundation funding rate to include the following amounts for principals:

	2016	2017
Per-Student Rate	$198.10	$198.10
% Change	0%	0%

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools collectively spent $93.2 million in foundation funding on principal compensation, or about $98,923 for every 500 students. That's about $89 per principal less than what the matrix funded.

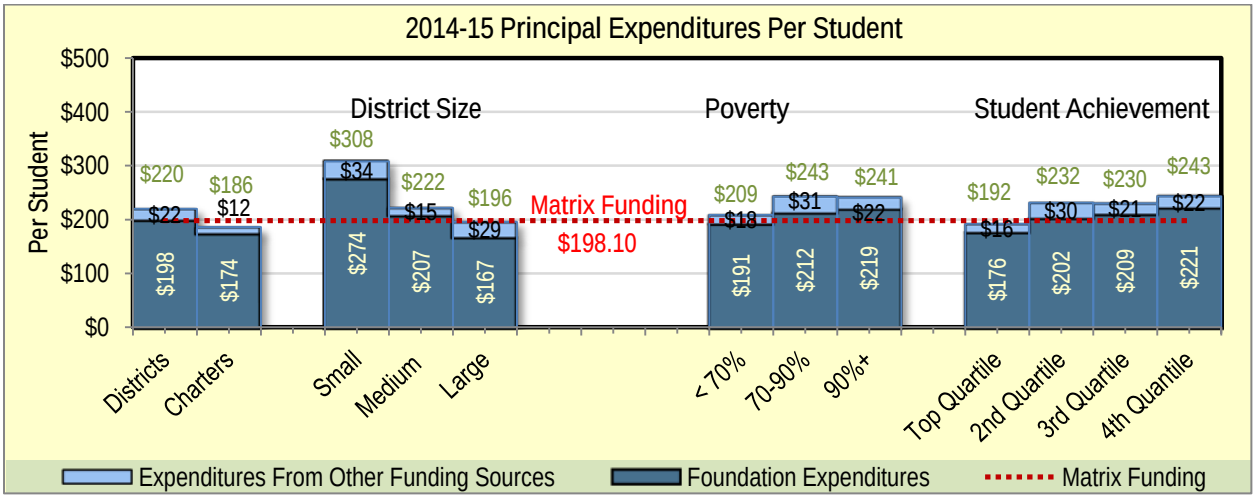
Principals: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$90,767,835	$91,111,727
2014-15	$93,351,041	$93,231,883

Districts paid principals a salary that was, on average, nearly identical to the salary provided in the matrix.

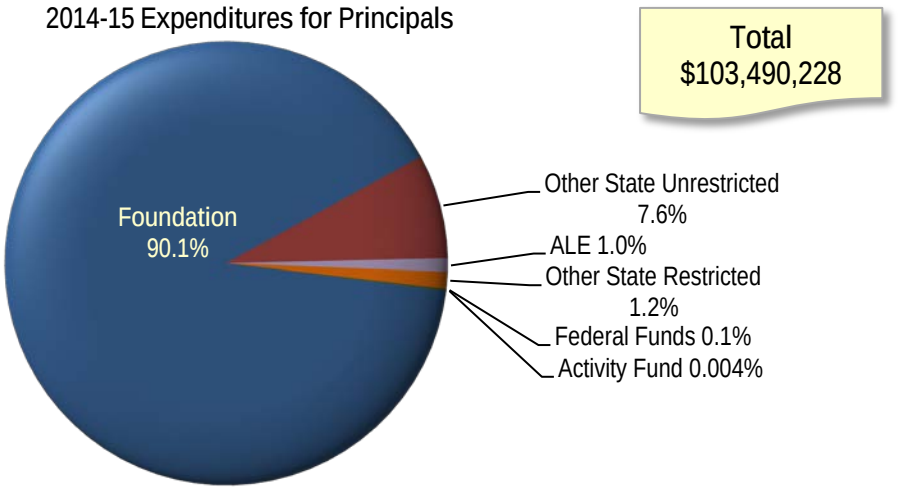
	Salary in the Matrix	District/Charter Actual Average Salary*
Principal	$79,667	$79,521

*Calculated using all funding sources.

Smaller districts spent more foundation funding on principals than larger districts, which is likely the result of employing more principals for a given student population, rather than paying individual principals higher salaries. High-poverty districts spent more per student on principals than districts with lower concentrations of poverty, but the differences were not dramatic. Low achieving districts tended to spend more foundation funding on principal salaries than high achieving districts, but again the differences among student achievement groups was not as dramatic as the differences among small, medium and large districts.



Most of the funding districts and charter schools use to pay for principals is foundation funding (90%), but they also use about $7.9 million in other state unrestricted funds to pay these salaries.



SCHOOL-LEVEL SECRETARY

The duties completed by school clerical personnel include record-keeping, answering phones, managing the office, and serving as a liaison to parents.

STAFFING IN THE MATRIX

The 2003 Adequacy Study conducted by Picus and Associates mentioned clerical staff as a component of the prototypical school's overall operations and maintenance costs, which the General Assembly translated into a nebulous funding line known as the "carry-forward." (The carry-forward was later broken into three more specific categories of transportation, operations and maintenance and central office costs.) When the consultants were rehired in 2006, they noted that efficient school operations require administrative support and clerical services, even though state accreditation standards do not require schools to employ clerical support. They recommended that 2.0 FTE school secretaries be separated from the carry-forward and included as a separate line in the school-level staffing section of the matrix. The Adequacy Subcommittee agreed that two school secretaries should be broken out of the carry forward and included in the school-level staffing section of the matrix. However, following the publication of the Adequacy Subcommittee's final report, the number of school level secretaries was reduced to one.

The matrix staffing level for clerical support has remained at one secretary position per 500 students since it was established.

In their final report of the 2014 Adequacy Study, the Education Committees recommended keeping the per-student foundation funding rate for school secretaries at the FY15 rate for FY16 and FY17, reasoning that one school secretary is sufficient to support a prototypical school of 500 students. Act 1248 of 2015 set the per-student foundation funding rate to include the following amounts for school secretaries:

	2016	2017
Per-Student Rate	$80.10	$80.10
% Change	0%	0%

Statute and Standards

There are no statutory or regulatory requirements regarding the number of clerical support schools are required to have.

Meeting the Requirements

No schools were cited for violations related to school clerical support in 2014-15.

STATE RANKING

NCES provides data on the number of school administrative support staff in each state. The most recent data available for all states are from 2013-14. According to the NCES data, Arkansas had a total of 2.79 school administrative support staff per 500 students in 2013-14. (The enrollment data used to calculate the number of school administrators per 500 students include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	School Administrative Support Staff: Arkansas's Rank
All States and Washington D.C. (51)	17th highest
SREB States (16)	4th highest
Surrounding States (7, including AR)	1st

COST OF SCHOOL-LEVEL SECRETARIES

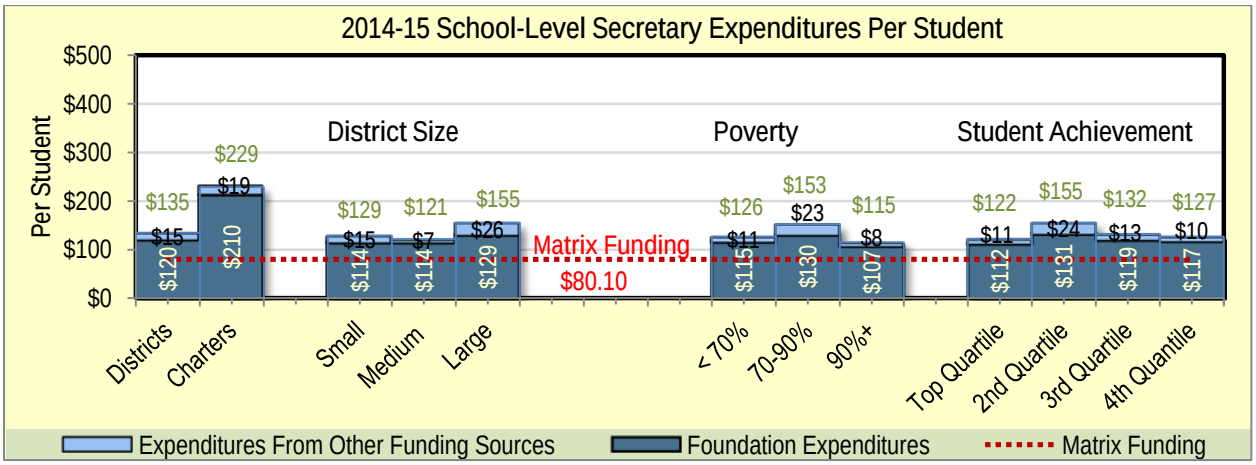
Like the principal's salary, the school secretary's salary in the matrix is not based on the average teacher salary. Instead, the matrix includes a specific salary and benefits package totaling $40,031, or $80.10 per student in 2014-15. That amount is comprised of a base salary, health insurance contribution, retirement, Social Security, Medicare, unemployment and workers' compensation.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

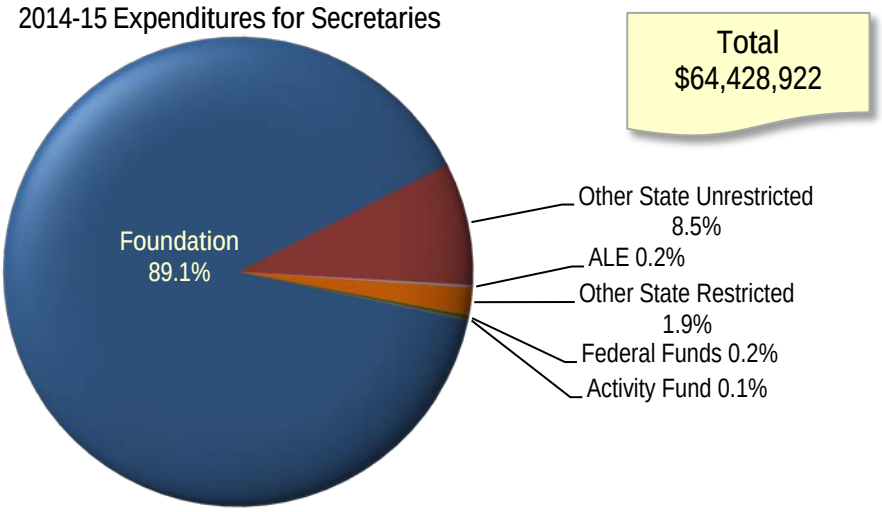
The APSCN system does not allow for easy calculation of the number of *all* clerical support staff funded by foundation funding. However, expenditures can be examined. In 2014-15, districts spent $57.4 million in foundation funding on school secretary compensation (including benefits), or $122 per student. This can be calculated as $60,908 for every 500 students, or about $20,900 more than what was funded by the matrix.

School-Level Secretaries: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$36,728,222	$55,393,934
2014-15	$37,745,676	$57,403,569

Open-enrollment charter schools spent considerably more foundation funding per student on school-level clerical support than traditional school districts spent. District spending on secretaries did not appear to differ significantly based on district size or student achievement, although large districts had slightly higher per-student expenditures. High-poverty districts had the lowest per-student expenditures of the three poverty-level groups.



Most of the funding districts used to pay for secretaries was foundation funding (89%), but districts also used about $5.5 million in other state unrestricted funds to pay these salaries.



SCHOOL-LEVEL RESOURCES

In addition to staffing, schools need a variety of other types of resources. The school-level resources in the matrix include five general categories: technology equipment and related services, instructional materials, extra duty funds, supervisory aides, and substitute teachers.

TECHNOLOGY

Technology is a powerful tool that gives teachers, students and administrators new ways to access information and structure education. Technology has allowed students increased opportunities to customize education through virtual or distance learning.

CURRENT RESEARCH

Research demonstrates that the effective use of technology helps improve student achievement (e.g., Grinager, 2006). Two rigorous meta-analyses conducted at Johns Hopkins University show that technology positively impacts math (Cheung & Slavin, 2011) and reading achievement (Cheung & Slavin, 2012).

By helping students work more independently, technology gives teachers more time to work one-on-one or with small groups of students. It also offers access to highly qualified teachers in hard-to-staff subjects or hard-to-staff urban and rural schools, giving all students the opportunity to take a rigorous curriculum, regardless of their school's ability to recruit and retain teachers (Grinager, 2006).

Odden (2012) has noted that "blended instructional" programs infuse teaching and technology effectively into regular schools, including those with high concentrations of poverty. This blended approach allows teachers to more closely monitor individual students' work, and it permits content to be taught in schools that do not have a teacher for that content.

Statute and Standards

Current state statute and state accreditation standards establish only minimal technology requirements. State accreditation standards require a minimum of "one (1) computer per media center with multimedia/networking capacity for administrative purposes only" (16.02.4)

Meeting the Requirements

No school was cited for a violation related to this standard in 2014-15.

COST OF TECHNOLOGY

The technology line item of the matrix was originally set at $250 per student based on the 2003 recommendations of Picus and Associates. This rate was established to provide districts $125,000 per 500 students to purchase, update, and maintain hardware and software. The funding was designed to provide one computer for every three students and the technology infrastructure needed for distance learning. On the advice of the consultants, the General Assembly set the technology funding rate at $250 per student, but over the next two years, the General Assembly decreased the amount to $185 per student, due to evidence presented to the Education Committees that the price of technology was decreasing.

In 2006 when the consultants were rehired to adjust the matrix, they again recommended providing districts with $250 per student to pay for technology expenditures. This time they detailed the individual costs comprising the $250 funding amount. This funding was designed to cover four categories of technology expenditures: 1.) computers, 2.) operating system and other non-instructional software, 3.) network equipment, printers and copiers, and 4.) instructional software and additional hardware. Picus and Associates described the four components and recommended the following per-student cost for each.

	Individual Items		Per-Student Cost
1) Computers	• One computer for every four students, plus one computer for every teacher, principal and other key school staff, which calculates to an overall ratio of 1 computer for every three students		$100
2) Operating system and other non-instructional software	• Operating system (e.g., Windows) • Productivity suite (e.g., Microsoft Office) • Server software	• Database • Antivirus/anti-spyware • Other network	$50

	Individual Items		Per-Student Cost
3) Printers, copiers, network equipment	• Network equipment and internet connectivity	• Copiers, 240 copies per student • Printers	$50
4) Instructional software and additional hardware	• Instructional hardware: e.g., LCD projectors, smart boards (interactive whiteboard), document cameras (digital overhead). • Instructional software: e.g., Accelerated Reader, multimedia resources such as Discovery.com. • Software for administrators: e.g., Edusoft (helps administrators analyze test scores)		$50

Picus and Associates noted that the technology funding was designed to cover the costs of physical technology needs and services, not technology employees. Technology staff, they noted, are funded through other line items in the matrix. Specifically, a 0.5 FTE technology assistant is provided through the instructional facilitator line item of the matrix, and the central office line item supports 1.0 FTE technology coordinator.

While the consultants reiterated their recommendation in 2006 that technology should be funded at $250 per student, the Adequacy Subcommittee determined that $185 per student accurately reflected the cost of technology (minus technology staff) in schools. However, the subcommittee opted to increase the technology funding in 2007-08 to $220 and decrease it to $201 for 2008-09 based on a declining inflationary index for computers. From 2009 through 2015, the technology line item steadily increased as a cost-of-living adjustment was applied each year to the total foundation funding rate.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for technology by 5.4% for FY16 and 5.1% for FY17, following the recommendation of Picus Odden and Associates. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for technology:

	2016	2017
Per-Student Rate	$237.80	$250
% Change	5.41%	5.13%

To identify the issues that are the most significant obstacles to the use of technology in schools and districts, the BLR surveyed superintendents and teachers using the following question.

District and Teacher Survey Question: Rank the barriers your district faces to the use of technology in the classroom, where 1 is the most significant barrier and 8 is the least significant. Please mark any barriers that do not apply to your district as N/A.

The following table provides the average ranking of each barrier in the district survey and the teacher survey. This analysis excludes the “NA” responses from the superintendents and teachers.

The following table shows that generally speaking, superintendents and teachers agreed that **inadequate technology in students’ homes** was the biggest barrier to the use of technology. Both groups also indicated that **inadequate technology support** is also a significant barrier. The superintendents and teachers differed most significantly on the issue of the **supply of computers**, where teachers considered this a more significant obstacle than did superintendents.

	Average Ranking	
	Superintendents	Teachers
Inadequate supply of computers	5.7	4.6
Inadequate supply of other types of equipment	5.5	5.0
Inadequate bandwidth	4.9	4.8
Inadequate interest among teachers	5.6	5.5
Inadequate interest among administrators	6.6 (least significant barrier)	6.0 (least significant barrier)
Inadequate teacher training	5.0	4.9

	Average Ranking	
	Superintendents	**Teachers**
Inadequate instructional technology support staff (not enough staff or skills)	4.2	4.5
Inadequate technology in students' homes	2.9 (most significant barrier)	2.8 (most significant barrier)

In on-site school interviews, principals were asked a similar question regarding the barriers to the use of technology. Unlike the district survey and the teacher survey, principals were not provided with answers from which to select.

Principal Survey Question: What are the biggest barriers to your school's use of technology? If "money," what does your school need more money to do?

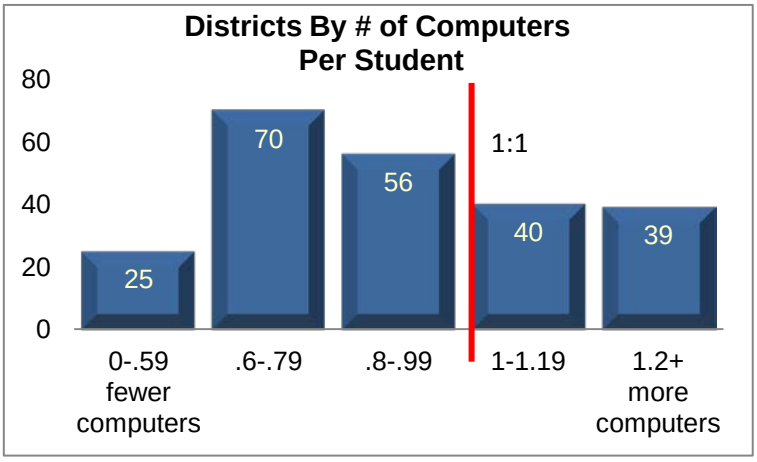
The most frequently cited barrier (17 of 73) among the principals surveyed was a need for **more devices**. Many principals expressed a goal of becoming a 1:1 school (one computer per student). Five principals said the limited number of computers causes scheduling challenges, either for access to computer labs during the school day or during testing time. A couple of principals mentioned the high cost of maintaining older devices. Fifteen of the 73 principals interviewed said they needed **more tech support**. Some said they needed a full-time person devoted to technology issues in their school, while others said a teacher in their school doubles as the tech support staff. A couple of principals lamented the high turnover rate among tech support staff. Ten principals expressed a desire for **more professional development for teachers** in the use of technology. Seven principals said **inadequate bandwidth** creates instructional challenges. Six principals said **a lack of student access to technology at home** is a significant barrier.

DEVICES AND EQUIPMENT

Districts are not required to obtain a particular number of computers/devices for students, and the state does not routinely track the amount of technology equipment districts have.

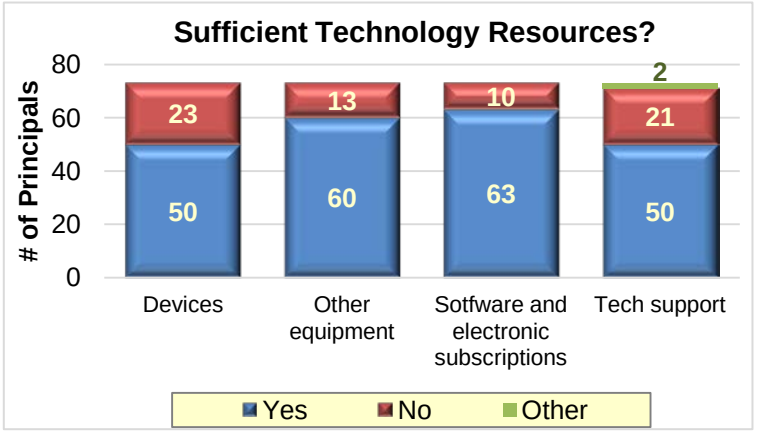
District Survey Question: How many computers that connect to the internet does your district have?

One of the 231 districts that responded to the survey did not answer this particular question. Of those that did, 34% said they had at least a 1:1 computer to student ratio. The remaining 66% reported having a ratio that was less than 1:1.



Principal Survey: Does your school have adequate devices, equipment, software and electronic subscriptions, technology expertise and support?

Principals generally said they have adequate technology resources. However, inadequate supply of devices and tech support was more commonly voiced than inadequate software, electronic subscriptions and other equipment.



BROADBAND

Fast internet speeds and the ability to access the internet when needed are increasingly important parts of schools' effective use of technology. In recent years, district administrators have expressed concern about the availability and high cost of sufficient broadband to allow uninterrupted internet access for instructional and administrative functions. In 2014, the General Assembly contracted with consulting company CT&T, Inc. to identify districts' broadband needs and recommend solutions. The company found that 35% of districts and charter schools do not meet the recommended broadband level of 100Kb/s per student.

Some steps have been taken to improve those numbers. In 2014, the General Assembly enacted Act 298 appropriating $5 million for a Broadband State Matching Grant program from General Improvement Funds. A total of $3.7 million of this funding was distributed to 205 districts and charter schools (about 81% of all districts and charter schools). Another $300,000 was distributed to 11 education service cooperatives. The remaining $995,364 has been carried over from 2014-15, and ADE has indicated they intend to repurpose the funds for a reading program.[9]

Additionally, at the end of 2014, ADE and the Department of Information Systems (DIS) began an initiative to improve the APSCN network through which all districts and charter schools receive greater connectivity. The improvements are being funded through the existing $13 million that ADE pays DIS annually for broadband (a subset of DIS's total charges to ADE). School districts are expected to be connected to the improved network by the end of the 2015-16 school year. As of May 2, 2016, 108 districts and education service cooperatives have been connected to the new APSCN network.

Previously all districts received a minimal amount of connectivity through APSCN, and they were permitted to purchase additional broadband on top of that—either by purchasing additional bandwidth through DIS's APSCN contracts with providers or by purchasing additional broadband directly from providers. However, this patchwork model became an issue for the Federal Communications Commission in its reimbursement under the E-rate program. FCC rules prohibit the reimbursement of "duplicative services" and the agency informed DIS that internet service provided by multiple providers is considered "duplicative." As a result, the FCC advised DIS that E-rate will only provide reimbursement for service from one provider. Providing the majority of bandwidth through the APSCN network eliminates this issue with E-rate funding.

Under the new network, all districts will receive at least 200 kb/s per user (i.e., all students, faculty, administrators, etc.) at no additional cost to the districts. DIS issued an invitation for bid (IFB) for which providers could bid to provide service on the new network. In some cases, providers were awarded contracts to serve districts on the new APSCN network that they had been previously contracted to serve directly. Ultimately, DIS estimates the new network will provide twice the bandwidth for about a third of the cost ($3.50 per Meg, compared with an average of $11.50 per Meg that districts have been spending). According to DIS, the lower cost is due, in part, to the ability to purchase in higher quantities than districts could purchase on their own. Districts will continue to have the option of purchasing additional broadband through the new network for an extra charge.

For many years, it has been difficult to determine how much money districts spent on broadband. That's because there were no specific APSCN expenditure codes districts could use when recording those expenditures. In the absence of such codes, some districts recorded broadband expenditures using codes for utilities, while others used codes for technology. In 2013-14, ADE introduced new codes districts could use for broadband. Districts could voluntarily use the new codes in 2013-14, but the codes became required in 2014-15. The following table shows the total broadband expenditures (from all funding sources) districts recorded in APSCN. The table also provides the average broadband expenditure per student in the districts/charter schools that

[9] Rogers, G., ADE, May 3, 2016 email.

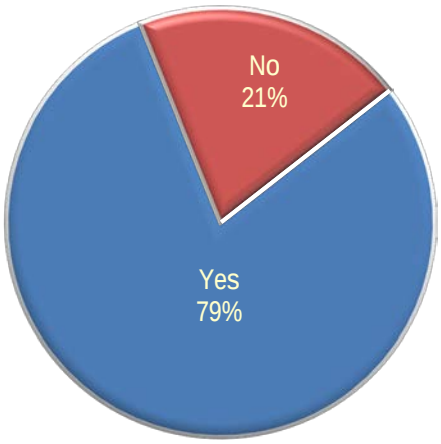
recorded any broadband expenditures. Many districts recorded no broadband expenditures at all, which may be due to failure to identify broadband expenditures using the new codes.

	Broadband Expenditures	Average Broadband Expenditure Per Student	Districts/Charters Reporting Any Broadband Expenditures
2013-14	$4,672,085	$16.42	120
2014-15	$7,350,475	$19.47	189

To identify issues schools were having with broadband, principals and teachers were asked on the BLR surveys about their satisfaction with bandwidth levels.

Principal Survey Question: Does your school have sufficient broadband for smooth operations of all instructional and administrative functions?

Principals: Broadband Sufficient?

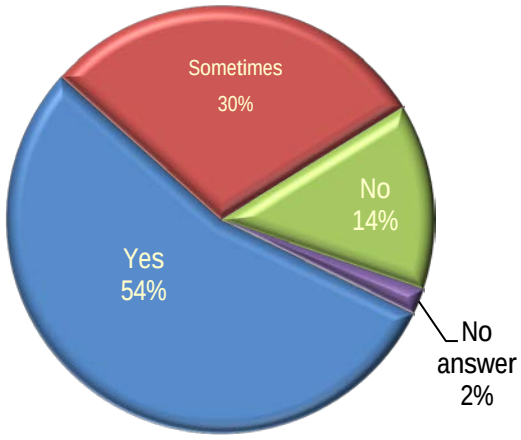


If no, when and how does inadequate broadband create problems?

	Principals
Testing	6
Distance learning	2
Infrastructure or other connection issue	3
Project-based learning	1
No master technology plan	1
Other	3

Teacher Survey Question: Is broadband capacity at your school sufficient for your curriculum and instructional needs?

Teachers: Broadband Sufficient?



The majority of teachers and principals said their school's broadband was sufficient for their needs. About 21% of principals and 14% of teachers said broadband was not sufficient. In interviews, principals noted that inadequate broadband was most troublesome during periods of computer-based student testing.

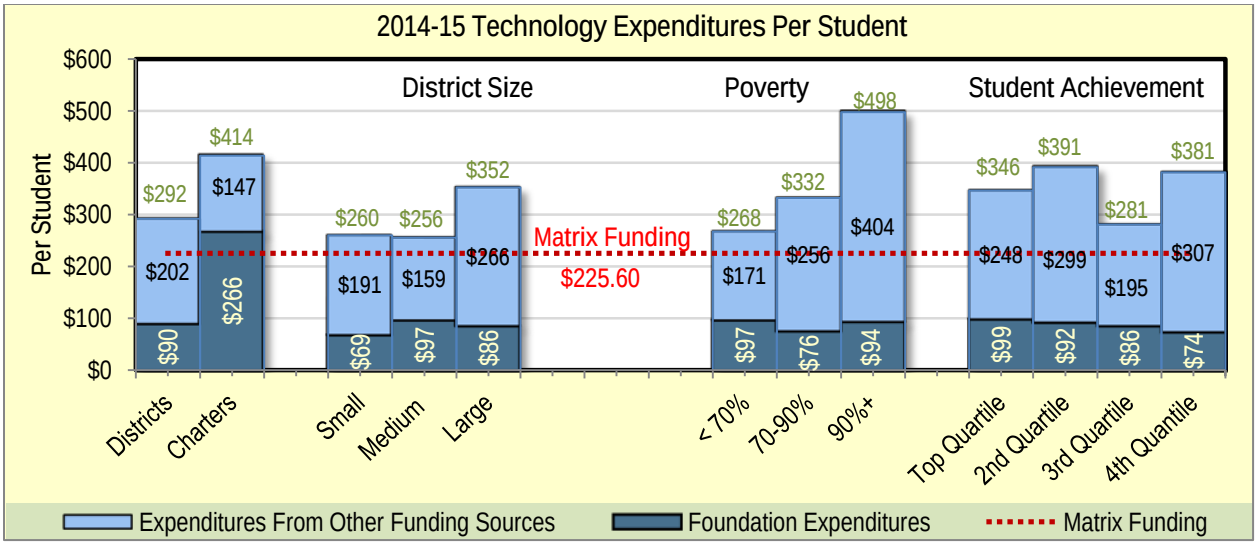
DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools collectively spent $44.2 million in foundation funding on technology. This equates to approximately $94 per student in 2014-15, compared with $225.60 provided in the matrix. The following table shows the total foundation funding expenditures for technology for 2013-14 and 2014-15.

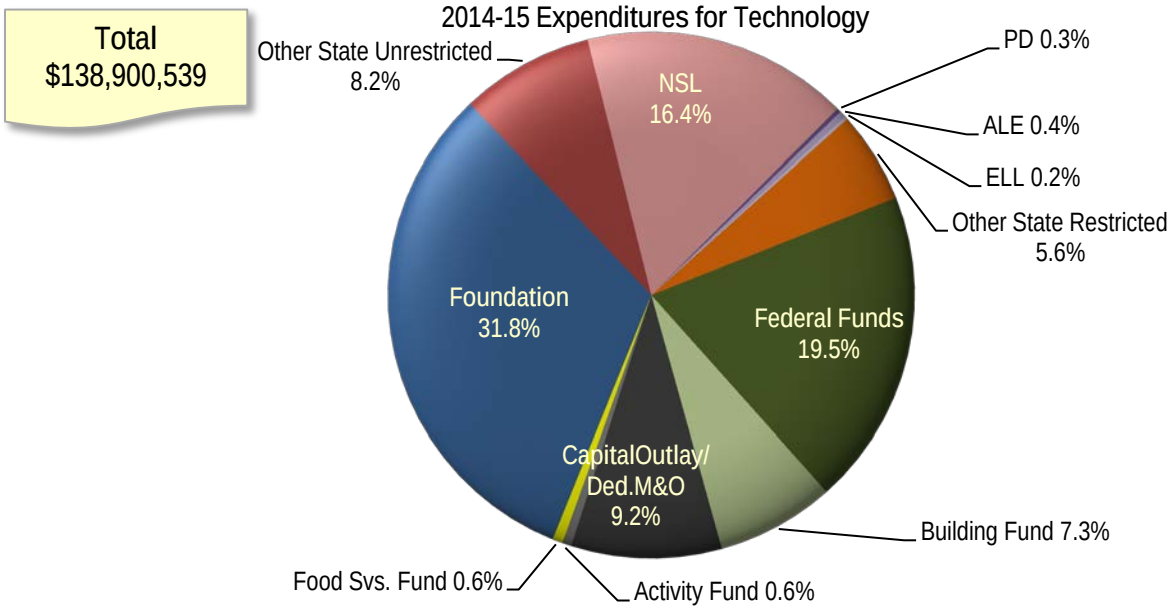
Technology: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2013-14	$103,634,410	$42,104,915
2014-15	$106,309,918	$44,193,349

Traditional districts spent considerably less foundation funding on technology than charter schools. All but nine traditional districts spent less foundation funding per student than the matrix provides for technology. Charter schools' high expenditures are due in part to the unusual spending pattern of five schools that spent more than $500 per student from all funding sources. One of the charter schools opened in 2014-15. Its technology expenses may be high due to one-time start-up costs. One of the other charter schools is a virtual school which may have a greater need to invest in technology than a traditional school.

Mid-sized districts spent a little more foundation funding on technology than did districts in the other groups. However, when considering technology expenditures from all funding sources, large districts varied little based on size. When grouped by poverty levels, districts differed little in their foundation funding spending, but high-poverty districts far out-spent the other two groups in total technology spending. This group of nine districts included four districts that spent more than $700 per student from all funding sources on technology as well as one district that spent about $20 per student. District spending from foundation funds decreased as student achievement decreased, but overall spending on technology followed no distinct pattern.



Foundation funding made up about 32% of the money districts used to make technology purchases in 2014-15. Major sources of funding districts used for technology include state NSL funding (16%), federal funds (20%) and money from their capital outlay/dedicated M&O funds (9%).



OTHER TECHNOLOGY FUNDING

In addition to foundation funding, districts and charter schools have a variety of other funding sources they may use to purchase technology-related items. Some districts may collect millage dedicated to technology-related capital outlay. Districts also receive considerable federal funding as described below.

E-Rate Funding

The Schools and Libraries Program, commonly known as E-rate, is a Federal Communications Commission (FCC) program that provides discounts to help K-12 schools and public libraries pay for telecom and internet services. The program provided about $25 million in discounts to Arkansas schools and educational agencies in 2014-15. The program uses funding from the Universal Service Fund, which is funded by a fee paid by wireless and telephone customers through their phone bill. The program has historically provided discounts to schools and libraries for the purchase of telecommunications services, including broadband, telephone services, web hosting wireless internet access, and the installation of fiber. The FCC implemented a change of focus in 2014, directing E-rate funds more toward broadband costs and internet connectivity and away from telephone services and other older technology.

Districts and other education consortiums are awarded discounts based on the percentage of each school's students eligible for free or reduced price lunch and whether they are located in an urban or rural location. Districts with higher concentrations of poverty receive greater discounts than those with lower concentrations, and districts in urban areas receive lower discounts than those in rural communities. In Arkansas, districts are eligible for discounts ranging from 20% of eligible charges to 90%. Districts and the state must apply for the discounts each year. The Universal Service Administrative Company (USAC), a not-for-profit company contracted by the FCC to administer the program, either reimburses districts, DIS and other applicants for a certain percentage of their expenses or pays the discounted portion directly to the telecom providers, which then provide a discount on the applicants' bills.

The following table provides the total discounts provided to the state, districts, charter schools and education service cooperatives as of May 21, 2016.

	2013-14	2014-15	2015-16
State (for APSCN connectivity to schools, for distance learning connectivity, and for districts purchasing broadband through the state contract)	$2,134,474	$1,105,252	$7,885,168
Districts	$13,695,054	$20,143,440	$19,255,920
Educational Service Cooperatives	$1,012,739	$3,765,165	$492,265
Charter Schools	$94,455	$151,244	$195,324
Total	**$16,936,722**	**$25,165,101**	**$27,828,677**

Data Source: Funds for Learning

Some of the reimbursements for the APSCN connectivity through DIS were delayed for 2012, 2013 and 2014 funding years due to problems with the E-rate applications DIS filed. To correct the problems, ADE and DIS filed an appeal of USAC's decision directly with the FCC. That appeal has been granted. DIS and ADE also began contracting with Oklahoma-based consulting company Funds for Learning to address the issues and recover about $20 million to $22 million the company believes the state is owed in E-rate payments. Funds for Learning representatives said so far DIS has received about $2 million of that amount, and anticipates another $5 million by early June. The company expects DIS will receive another $12 million to $15 million by the end of the 2016 calendar year.

INDIRECT TECHNOLOGY FUNDING

In addition to foundation funding and other types of funding districts and charter schools receive directly for technology-related expenses, the state provides funding to education service cooperatives and other entities that ultimately benefits school districts. Even though these funding programs do not provide technology funding directly to school districts, they offer districts resources that may alleviate the need to purchase their own technology equipment or services. The following funding programs are appropriated to the Department of Education through the Public School Fund. ADE then distributes the money to the designated organizations.

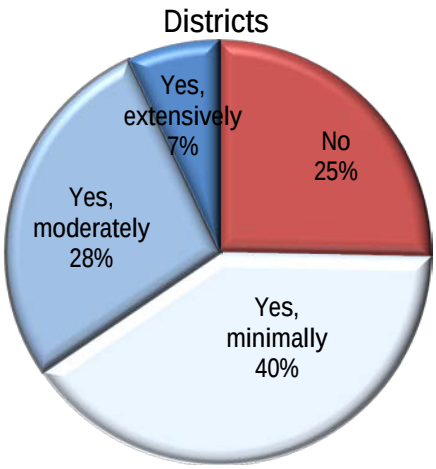
Cooperative Education Technical Centers Operations

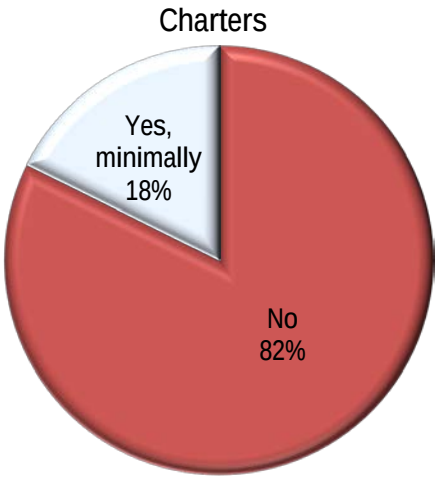
This funding provided about $1.19 million in 2014-15 to allow the state's 15 educational service cooperatives to employ technology coordinators. Each cooperative received $75,000 to employ one technology coordinator whose job is to help member school districts determine technology needs, analyze their technology systems and design local networks. The technology coordinators also provide districts with staff development and information on technology standards. ADE's Rules Governing Technology Training Centers in Education Service Cooperatives indicate that technology coordinators should have "demonstrated expertise in providing staff development in instructional technologies and demonstrated expertise in school district technology planning." The rules also call for technology coordinators to have "relevant training in network operating systems and management information systems."

To determine the extent to which districts and charter schools use these staff, BLR included the following questions on the district survey.

District Survey Question: Does your district use the technology coordinator in your educational service cooperative?

Two districts that completed the survey did not answer this question. Of those that did, about 35% of districts said they used the technology coordinator moderately or extensively. About 65% of the responding districts and all of the responding charter schools said they don't use them or they use them only minimally.





District Survey Question: If no, why doesn't your district use the cooperative's technology coordinator?

a) Our district employs our own technology staff.
b) The coop technology coordinator is not sufficiently helpful/knowledgeable.
c) We are unfamiliar with this cooperative staff member.
d) This position in the cooperative is currently unfilled.
e) Other. Please describe.

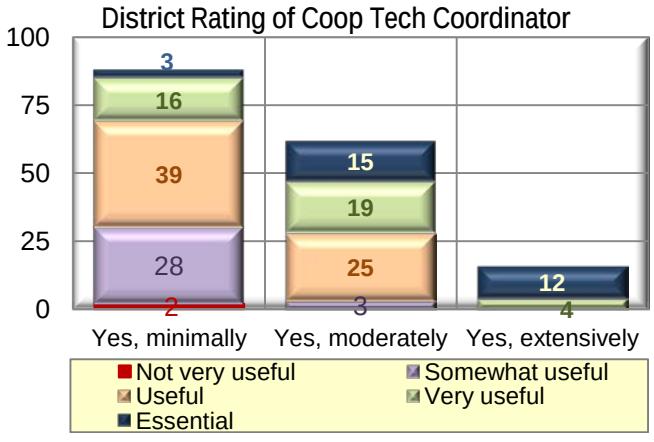
Of the 58 districts that said they did not use the coop's technology coordinator, 56 said this was because they employed their own technology staff. The remaining two districts left this question blank.

	Use the coop's coordinator? No.	"Our district employs our own technology staff"	No Answer
District	58	56	2
Charter Schools	14	6	8

While the question did not anticipate a response from any districts that said they *did* use the cooperatives' technology coordinators, 27 of the 92 districts that answered "Yes, minimally" and eight that answered "Yes, moderately" indicated they had their own technology staff. No districts responded with any other of the choices provided.

District Survey Question: If you answered "yes," to question 18, how useful is the technology coordinator in your educational service cooperative in meeting your district's technology needs?

The following chart shows how the 171 districts that said "yes" rated their the coop's technology coordinator. The data show that 21% of the districts that reported using their coop's technology coordinator "minimally" rated their coordinator as "very useful" or "essential." That compares with 54% who use their coordinator "moderately" and 100% of those who use their coordinator "extensively."



Technology Grants

This funding program provided more than $3.56 million in 2015 for various technology resources. The majority of the money ($2.83 million) was provided to the Environmental and Spatial Technology program, known as the EAST Initiative. The EAST Initiative helps schools establish and implement project-based, service learning programs by providing guidance and equipment to participating schools. EAST selects five to 12 new schools each year and provides about $67,000 worth of equipment (including laptops, tablets and printers) to schools that join the program. EAST also provides training to students and professional development to their teachers. More than 220 Arkansas schools have EAST programs, according to the EAST Initiative's website.[10]

Distance Learning

The Distance Learning program provides between $11 million and $12 million annually to fund a statewide system of distance learning coursework for Arkansas public schools. In 2014-15, about $5 million of the distance learning funding was distributed to three education service cooperatives to develop and provide distance learning courses. The Arkansas School for Mathematics, Sciences and Arts also received $500,000 to offer distance learning courses. The Department of Information Systems (DIS) received about $3.6 million of the Distance Learning funding to provide broadband/connectivity, internet access, and video conferencing to districts through the APSCN network. The Distance Learning funding also provided $750,000 to the Arch Ford Education Service Cooperative for six distance learning support specialists who serve districts statewide. The distance learning support specialists have expertise in online instruction and they help districts implement distance learning courses.

	2014-15 Funding Amount
Department of Information Systems	$3,613,626
Arch Ford Education Cooperative	$3,602,362
Dawson Education Cooperative	$1,416,293
Southeast Arkansas Education Cooperative	$756,988
University of Arkansas, Arkansas School for Mathematics, Sciences and Arts	$500,000
Southwest Arkansas Education Cooperative	$472,863
Software House International Corp.	$438,763
Other	$484,248
Total	**$11,285,143**

Distance learning was originally implemented in the state by Act 1083 of 1999 and was intended to help schools deal with the shortage of qualified teachers and to increase access to a variety of courses beyond those required by the state accreditation standards. All core courses offered through distance learning must meet or exceed all of the curriculum standards and requirements adopted by the State Board of Education. Career and technical courses must be approved by the Arkansas Department of Career Education (ACE). All courses must also be taught by an appropriately licensed educator. The courses offered through distance learning vary widely and may include subjects from photography and journalism to criminal justice and agricultural business. Distance learning classrooms may contain a group of students enrolled in one course or students simultaneously working on various courses. Students are able to remotely interact with their instructor and one another. An adult facilitator must also be present in every distance learning classroom.

Since distance learning began in Arkansas, courses were primarily offered by a consortium of three education service cooperatives and the Arkansas School for Mathematics, Sciences and Arts. The co-ops work together as a consortium, known as Virtual Arkansas, to provide a coordinated network

[10] EAST Initiative, retrieved at http://www.eastinitiative.org/projectsschools/schools.aspx

of distance learning courses statewide. Virtual Arkansas activities are organized by a state coordinator housed at the Arch Ford Cooperative.

The three co-ops that make up Virtual Arkansas—Dawson (Arkadelphia), Southeast Arkansas (Monticello), and Arch Ford (Plumerville)— employ the instructors teaching the classes. Dawson employs 12 instructors, Southeast uses 11 instructors, and Arch Ford has 50 distance learning instructors. Each cooperative has its own course specialty to avoid significant overlap in course offerings. Dawson specializes in career and technical courses, Arch Ford in courses providing the required 38 credit units (core courses), and Southeast Arkansas in courses that provide concurrent credit. The University of Arkansas at Monticello and Arkansas Tech University are the two higher education institutions that provide college credit for concurrent courses. They oversee the curriculum provided for these courses but receive no funding for granting credit from ADE.[11]

To supplement the Distance Learning funding provided through ADE, districts that use Virtual Arkansas pay the consortium an annual membership fee of $2,500. In 2014-15, the consortium began charging a fee of $25 per student per course for distance learning courses in which the districts enrolled students. If districts want to access the Virtual Arkansas content, using their own teacher, the fee is $15 per student per course. Districts and charters paid Virtual Arkansas $1.2 million in 2014-15, giving the consortium a total of about $6.25 million in funding.

During the 2013 legislative session, the General Assembly passed Act 1280, which requires all school districts to provide at least one digital learning course beginning in the 2014-15 school year (the terms “digital learning” and “distance learning” are used interchangeably). The law also requires students beginning with the ninth grade class of 2014-15 to take at least one digital learning course to graduate from high school. The law allows the distance learning courses to be online-based, where instruction is primarily delivered over the internet, or these courses can be taught using “blended learning,” meaning a combination of on-site instruction and some instruction delivered using technology.

Act 1280 also establishes criteria for companies to become “approved digital learning providers” in Arkansas, opening the door to districts’ use of distance learning providers other than the state-funded Virtual Arkansas or the Arkansas School for Mathematics, Sciences and the Arts. There are currently 38 approved distance learning providers.

The following table shows the distance learning providers used by Arkansas school districts and charter schools in 2014-15 and the number of students enrolled in courses offered by each provider, according to enrollment data districts reported through APSCN. K12 Virtual Schools is the vendor that provides course content for the online charter school the Arkansas Virtual Academy. All courses taken by the school’s 1,600 students are included in that vendor’s student count in the table. Another six districts and one charter school also used K12 Virtual Schools as their distance learning provider. Some districts that used Virtual Arkansas (and perhaps other vendors) as part of a blended learning course (where online content was blended with on-site instruction) may have recorded the distance learning provider as “Not Applicable.” In fact, there were 28 districts that paid distance learning fees to Virtual Arkansas, according to invoicing data provided by Virtual Arkansas,[12] but recorded their distance learning provider as a different vendor or “NA.”

Distance Learning Provider	Students Enrolled*
K12 Virtual Schools	18,820
Virtual Arkansas	18,191
Apex Learning, Inc.	4,070
Edgenuity, Inc.	883
Arkansas Northeastern College	480
Southeast Arkansas Community College	203

[11] Swan, C., Arch Ford Education Service Cooperative, May 12, 2016, email.
[12] Swan, C., Arch Ford Education Service Cooperative, May 13, 2016 email.

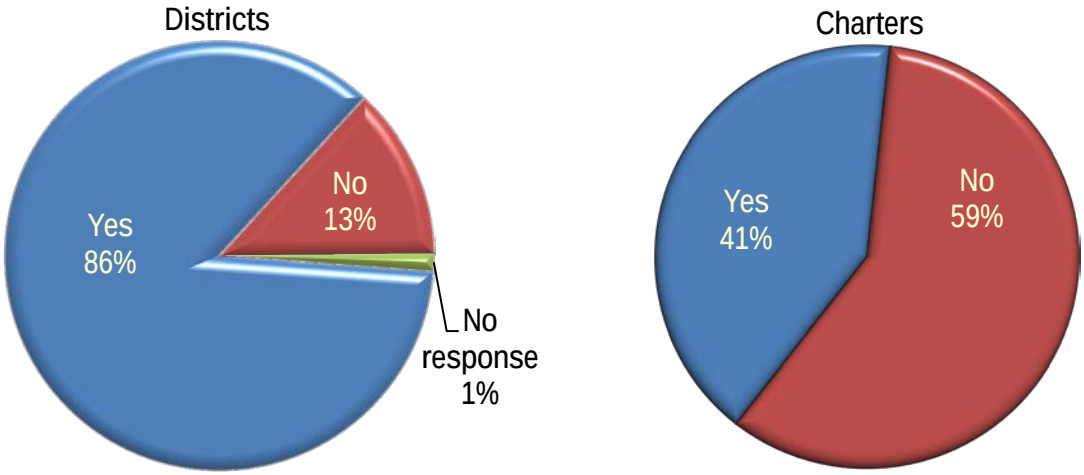
Distance Learning Provider	Students Enrolled*
University of Arkansas at Fort Smith	162
Arkansas School for Mathematics, Sciences & the Arts	146
Arkansas Public School Resource Center	127
Southern Arkansas University Technical College	93
Northwest Arkansas Community College	79
BYU Independent Study	63
Arkansas Department of Career Education	56
Edmentum, Inc.	37
Odysseyware Academy	25
North Arkansas College	16
Other	2,140
Not Applicable	21,421

*Students who were enrolled in more than one distance learning course are counted for each course in which they were enrolled.

To better understand how much districts were spending for distance learning courses, the BLR surveyed districts and principals about their experiences and these costs.

District Survey Question: Did you offer virtual/distance learning courses (with students actually enrolled) before the 2014-15 state requirement that all districts offer at least one?

Only 30 districts said they did not offer a virtual/distance learning course before the 2014-15 requirement went into effect. Not surprisingly, this group includes a number of large districts that may not have needed to use distance learning because they were able to employ sufficient numbers of teachers to teach in the traditional classroom. However, even some very small districts said they did not offer digital learning courses before the requirement went into effect. More than half of the charter schools that responded to the survey said they did not use distance learning before the requirement went into effect. For two of the charter schools that answered no, 2015-16 was the first year of operations and two others don't operate in the high school grades, where most distance learning courses are offered.



District Survey Question: If not, describe your district's experience offering virtual/distance learning during the 2014-15 school year, including any problems or benefits your district encountered.

Seven districts that said they did not offer distance learning before 2014-15 did not answer this question. Of those that did respond, 11 said they either had no problems or they had a positive experience. Two said inadequate bandwidth was a problem, and two described some technical issues they encountered with Virtual Arkansas. Two charter schools said bandwidth was a problem, and another school said technology access at home was an issue for their students. The following are a few selected responses.

"We are using a blended approach in health class with teachers that were already on staff. Therefore, the cost of the [distance learning provider] contract and the cost of the computers to teach can serve as an example of another unfunded mandate."

"1) Had to add technology labs to each classroom: econ/health/civics; 2) had to provide substitutes for PD; 3) gave teachers additional planning time to prepare class"

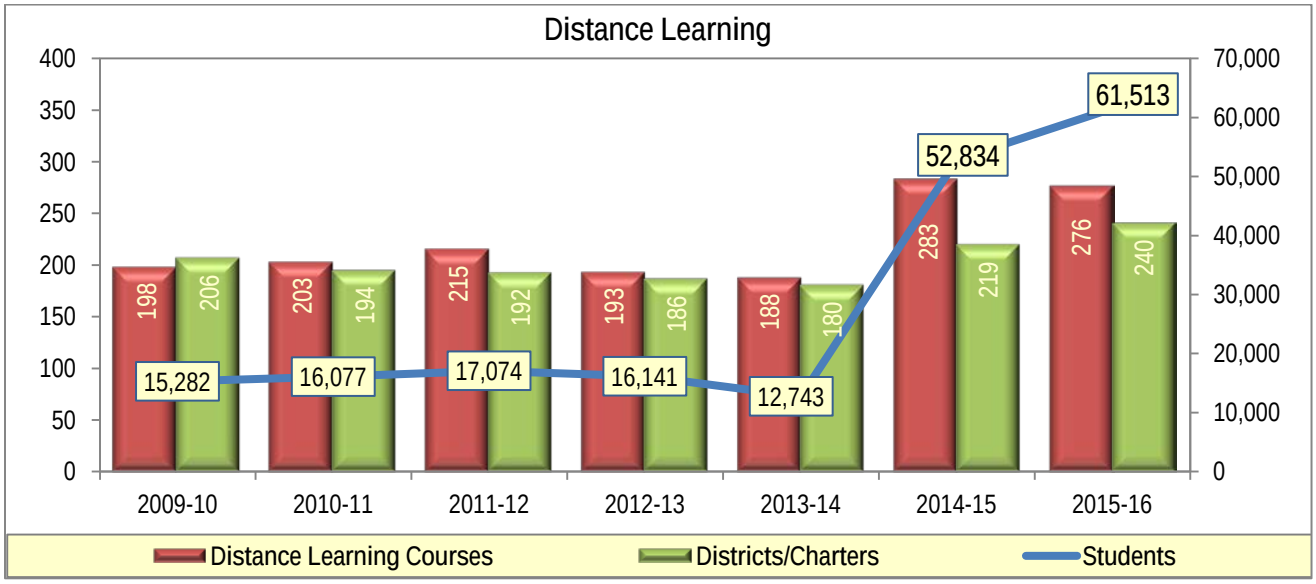
"Virtual learning has been a positive experience for our students. They have adjusted to having more responsibility on them instead of on the teacher."

"Overall, it was a positive experience. As a small district, the expanded course offerings were very beneficial to our students. Our online learning has expanded tremendously as a direct result of the positive experiences most students experienced. This year we have 84 students taking twenty-four different online learning classes. We have equipped a computer lab for digital learning, and we are now looking at purchasing MacBook Airs to further expand student access. We learned that a well-trained facilitator was essential. We have a written job description that clearly outlines job responsibilities. The facilitator was closely guided and supported in the first year to ensure student accountability and parent communication was maintained at a high level. The challenges have been maintaining software upgrades and appropriate Internet browsers."

Principal Survey Question: Does your school offer distance/virtual learning classes? If yes, describe your school's experience.

Several of the 24 principals who said they offer distance learning classes described a generally positive experience with it. They noted that distance learning allows them to offer a variety of courses and it helps fill in gaps in their schedules for courses that may be difficult to staff. One principal noted an issue with inadequate bandwidth. Several principals noted logistical issues with Virtual Arkansas, which may have resulted from the tremendous increase in demand for distance learning courses when Act 1280 of 2013 took effect in 2014-15. Two principals said digital learning courses are not as effective as courses taught by a live teacher, and three principals said students have a difficult time thinking of digital courses as credit-bearing courses or that students are less likely to do the required work in a distance learning course compared with a traditionally taught class.

The following chart shows the impact of Act 1280 on digital learning offerings and students enrolled in those courses. The number of courses offered represents the total number of digital learning courses in which districts enrolled students. Some courses, such as Banking and Finance Operations/Teller Training are offered as a distance learning course by one or two districts. Other courses, such as Health and Wellness, are offered as distance learning courses by many districts. The number of students below represents students enrolled in a digital learning course. Students who are enrolled in more than one distance learning course are counted more than once in the student count.



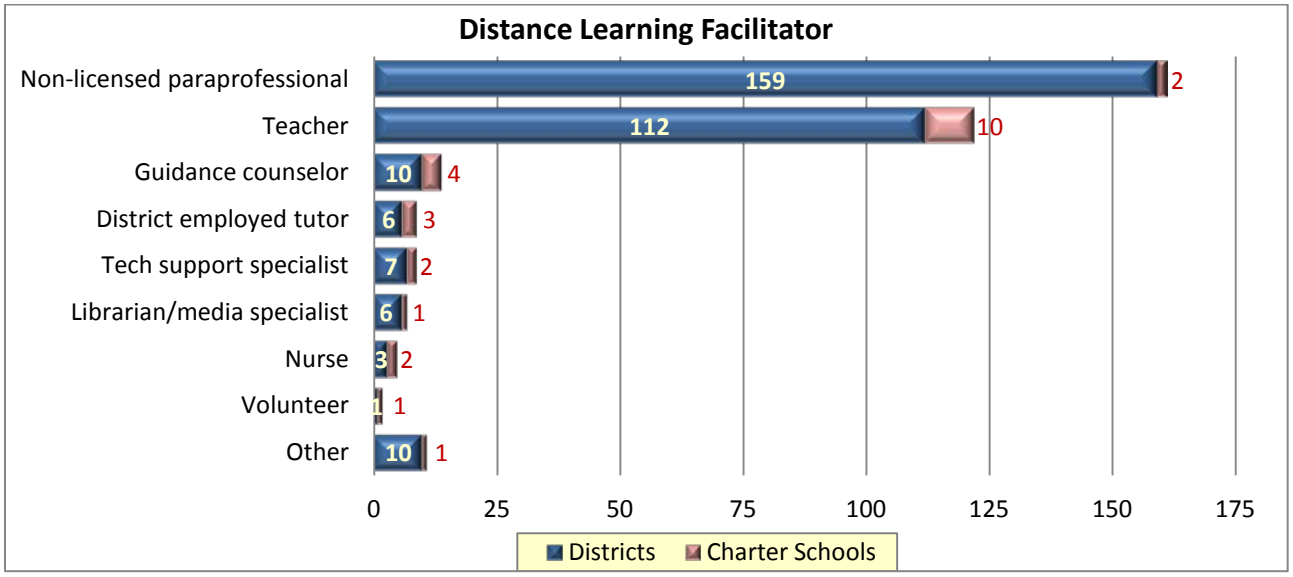
District Survey Question: Did your district offer a distance learning course in 2014-15 (in which students were actually enrolled) that was provided by a vendor OTHER THAN the state's Virtual Arkansas program? If yes, please list each vendor, the course(s) offered, the number of students taking the course in 2014-15 and the total amount your district paid the vendor for the course.

The per-student charges for these courses ranged widely, but the median per-student expenditure districts paid for these courses was $250 per student. Fourteen districts said they paid nothing for the courses. Many of the no-cost courses were provided by Arkansas higher education institutions, including Ozarka College, Rich Mountain Community College, and Northwest Arkansas Community College. Three districts said their courses were free to the districts because they were funded through a grant.

ADE's rules for distance learning require an "adult facilitator" in the classroom where the course is being delivered. This position is different from the course's primary instructor, who is located off-site. The adult facilitator is responsible for supervising instructional activity and administering assessments used to determine students' course grades.

District Survey Question: How many FTEs work in your district as a facilitator for virtual/distance learning course(s)? Please count employees who facilitate DL for only part of the day as partial FTEs (e.g., .5 FTE).

The table below shows the number of districts and charter schools that used each type of employee as a distance learning facilitator (with any number of FTEs). Districts and charter schools most frequently said they used non-licensed paraprofessionals and certified teachers to serve as the distance learning facilitator. Eight districts and seven charter schools districts left this question blank. Nine districts and three charter schools entered zero for all types of employees, including "other."



Act 187 of 2015 required all high schools to offer a course in computer science beginning in the 2015-16 school year. Many districts chose to offer this course using a digital learning option provided by Virtual Arkansas. To gauge the impact of this additional course, the BLR surveyed principals about their experience.

Principal Survey Questions:

- Did your school offer a computer science course before the requirement went into effect in 2015-16?
- Describe your school's experience with the new requirement that high schools offer a computer science course.
- Does your school offer computer science through an in-person course or through an online provider?
- What changes did your school have to make to become compliant with the new requirement, if any?

Of the 73 principals interviewed, only 22 served in high schools where the computer science requirement applied. Of those 22 principals, six said they offered the course before the requirement went into effect, while the other 16 said they did not. Most of the schools that had to create a course to comply with the requirement said they simply added a course to the master schedule using digital learning providers, such as Virtual Arkansas. One school added lab space for the course and another obtained training for one of its existing teachers. Of the 22 high schools surveyed, 13 said they offered the course online in 2014-15, five said they offered it as a traditionally taught course, and three said they used a blended approach of online and in-person learning. One charter school said they offered the course as a traditionally taught course and a few students signed up. However, the teacher quit during the year.

Generally principals thought the new offering was going OK, although several principals expressed some frustration with the roll-out of a new course. One principal described implementation as a "nightmare," citing delays in getting the curriculum frameworks, course titles and teacher licensure requirements. However, two other principals described a smooth transition and an easy roll-out. Aside from the structure of the course and its implementation, nine of the 22 principals said the courses generated little interest among students or they described minimal enrollment.

INSTRUCTIONAL MATERIALS

Instructional materials are the books and other supplies needed for classes and educational research. Instructional materials include textbooks, workbooks, worksheets and other consumables, math manipulatives, science supplies, and library materials. In their 2006 report Picus and Associates noted, "The need for current up-to-date instructional materials is paramount. Newer materials contain more accurate information and incorporate the most contemporary pedagogical approaches."

CURRENT RESEARCH

Citing Ravitch (2004), Odden et al. (2014, p. 54) stated, "Researchers estimate that up to 90 percent of classroom activities is driven by textbooks and textbook content…." Well-established researchers, Chingos and Whitehurst (2012), argued that instructional materials affected student achievement as much as any key factor, including effective teaching. At the same time, they noted there is a paucity of research on the effectiveness of these materials on student achievement. They stated, "Not only is little information available on the effectiveness of most instructional materials, there is also very little information on which materials are being used in which schools" (p. 2).

In a seminal qualitative study, Oakes (2014) compared textbook use of high-performing education systems (Singapore, Hong Kong, Finland, Massachusetts, and Alberta) to the lower-performing education system in England. (England was the only system studied that scored below the Organization for Economic Cooperation and Development average on the Programme for International Student Assessment (PISA), which has become the world's premier yardstick for measuring academic performance of 15-year-old students.) After an examination of the use and quality of textbooks in the education systems studied, Oakes (2014), a leading expert on effectiveness of educational strategies, argued that high-quality textbooks have played a major role in elevating student performance in highest-achieving systems.

In a comparison of the percentage of students whose teachers use textbooks as a basis for instruction, Oakes (2014, p. 7) noted that Finland and Singapore have considerably higher percentages than England in math (95%, 70%, and 10%, respectively) and science (94%, 68%, and 4%, respectively). Oakes argued that the hasty move away from textbooks to various online materials, often witnessed in lower-performing countries, has overlooked this evidence regarding the use of high-quality texts in the top-performing nations (e.g., Finland, Singapore). He noted that high-quality textbooks have been subjected to very careful development and refinement to delineate key concepts and core knowledge, learning progressions, and a wide range of examples and applications that encourage and reinforce learning reflections. High-quality textbooks serve as a guide for structuring lessons, and as a coherent common reference point that can be incorporated in various teaching approaches. According to Oakes, it is the coherence that is typically lost in using a variety of digital and workbook materials.

Statute and Standards

State statute requires districts to "provide instructional materials, including the availability of any equipment needed to access the instructional materials," for all K-12 students in the state at no cost to the student (§ 6-21-403). The state accreditation standards mirror the statutory requirement by requiring school districts to "adopt instructional materials which provide complete coverage of a subject as described in that subject's curriculum frameworks and which fit the achievement levels of the students assigned to each teacher."

State statute requires school districts to provide each pre-K through 6th grade teacher $500 per class or $20 per student—whichever is higher—to spend on materials for class activities (§ 6-21-303(b)).

State accreditation standards require each school media book collection to have at least at least 3,000 volumes, or eight books per student, whichever is larger.

Meeting the Requirements

In the 2014-15, no school or district was cited for violations concerning a deficit of instructional materials or an inadequate library collection.

ADE indicated that it does not track whether districts are complying with the statute requiring districts to provide $500 to elementary teachers for instructional materials.[13]

[13] Griffin, M., ADE, August 5, 2015 email.

COST OF INSTRUCTIONAL MATERIALS

In 2003, the Joint Adequacy Committee adopted the recommendation that the state provide $250 per student for instructional materials and supplies. This funding level was based on recommendations in other states. The General Assembly accepted this recommendation and adopted $250 per student as the funding level for instructional materials.

In 2006, Picus and Associates recommended a reduced funding amount of $185 per student and specified the types and costs of instructional materials that would be included. This amount was intended to cover textbooks, consumable supplies (e.g., workbooks) and pedagogical aides, library texts and electronic services, formative assessments and funding for elementary teachers to purchase instructional materials. Based on the cost estimates provided below, the recommended funding amount was calculated to be $160 per student plus $25 per student for formative assessments.

Consultant Recommended Per-Student Funding Levels	Elementary	Middle	High
Textbooks	$60	$70	$100
Consumables (workbooks, worksheets, etc.) and pedagogical aides (math manipulatives and science lab supplies)	$60	$50	$50
Library texts and electronic services	$20	$20	$25
Formative assessments (informal periodical testing used to gauge what student are learning and to adjust teaching strategies)	$25	$25	$25
Teacher purchase of instructional materials	$20	NA	NA
Total	**$185**	**$165**	**$200**

The Adequacy Subcommittee, however, recommended funding instructional materials without formative assessments, which are not required by statute or accreditation standards. The Subcommittee set the funding at $160 per student and recommended further study of the issue. The Education Committees subsequently received expert testimony on formative assessments, but opted not to include funding for formative assessments in the matrix. The instructional materials funding gradually increased as annual inflationary adjustments were added through 2014-15.

In their final report of the 2014 Adequacy Study, the Education Committees recommended keeping the per-student foundation funding rate for instructional materials at the FY15 level for FY16 and FY17, reasoning that that level is sufficient to meet districts' needs. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for instructional materials:

	2016	2017
Per-Student Rate	$183.10	$183.10
% Change	0%	0%

The following sections of this report provide additional information about each of the four areas included in instructional materials funding.

TEXTBOOKS

The consultants' recommendation for textbooks was calculated based on the purchase of one textbook per student each year with a six-year textbook adoption cycle. State law specifies that districts may select their own textbooks, but any instructional materials purchased with state funds must be consistent with the state "curriculum and educational goals established by the State Board of Education" (§ 6-21-403). In the past, a state textbook selection committee, appointed by the State Board of Education, established a list of recommended books and other instructional materials. The state then allowed districts to purchase materials from the approved list through a state contract. Act 511 of 2013 eliminated the statewide textbook selection committee. To contain the price of instructional materials, Act 511 included a provision prohibiting textbook publishers from charging a school district "a price for instructional materials that exceeds the lowest contracted price currently bid in another state on the same product" (§ 6-21-403(e)(2)).

With the passage of Act 511, Arkansas is now one of 31 states and the District of Columbia in which the selection and purchase of textbooks and other instructional materials occurs at the local level. In the other 19 states, textbooks are selected by the state education board or department, according to the Association of American Publishers. According to the most recent data available from NCES, textbook adoption states spent an average of $47.10 per pupil on textbooks in 2012-13, while non-adoption states spent $53.80. Arkansas, which did not have a state adoption process in 2012-13, spent $40.37 per pupil. (The NCES data for 2012-13 does not include textbook expenditures for Alaska, Connecticut, Idaho, Illinois, New Hampshire, North Dakota, Texas, or Washington.)

The following table shows districts' and charter schools' total expenditures for textbooks and eTextbooks for the last five years, according to expenditures districts recorded in APSCN. These expenditures were made using all funding sources, not just foundation funding. ETextbook expenditures have risen significantly in the last five years, but the vast majority of those expenditures have been made by charter schools. Total purchases for eTextbooks made by traditional districts have never exceeded $200,000 in a given year.

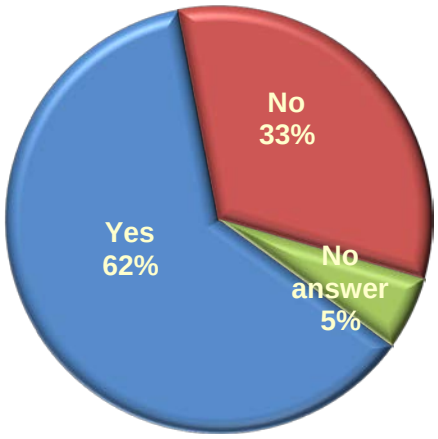
	Textbooks	eTextbooks	Expenditures Per Student
2011	$25,867,313	$1,200,772	$58
2012	$27,869,698	$958,300	$62
2013	$18,787,380	$1,041,928	$43
2014	$31,881,465	$2,613,169	$74
2015	$16,375,244	$3,354,231	$42

On the BLR's teacher survey, teachers were asked to provide their opinion about the supply of textbooks in their classroom.

Teacher Survey Question: Does your school have an adequate supply of high-quality textbooks and other reading materials for students in your classroom?

About 33% of the teachers who responded to the teacher survey said they do not have an adequate supply of high quality text books. The majority of teachers—62%—said they do have an adequate supply.

Sufficient textbooks in classroom?



CONSUMABLES AND OTHER PEDAGOGICAL AIDES

Along with textbooks, the instructional materials line item includes workbooks, worksheets, and teaching aides, such as math manipulatives and science supplies. In 2006, the consultants recommended providing districts with $60 per student for elementary grades and $50 per student for middle and high school grades. The consultants did not specify the basis for their estimated cost of these additional instructional materials.

State accreditation standards do not require specific levels of these types of instructional materials, but some state and federal requirements necessitate their purchase, particularly in science. For high school science courses, state accreditation standards require "active student participation in laboratory experience…for a minimum of 20% of instructional time."

LIBRARY MATERIALS

In 2006 Picus and Associates recommended providing $20 per student for elementary and middle school library collections and subscriptions and $25 per student for high school libraries. The funding for library collections, according to the consultants, was at that time above the national average. More recent data indicate school libraries nationwide spent about $17.26 per student for library materials.[14] This is down from 1999-00 when school districts spent $23.37 per student. The decrease in expenditures may be the result of a reduction in the annual addition of books and materials to school libraries. Still, the total number of books per 100 students has increased over the last decade.

U.S.	1999-00	2003-04	2007-08	2011-12
Holdings per 100 students				
Books	1,803	1,891	2,015	2,188
Audio and video materials	59	80	90	81
Additions per 100 students				
Books	-	99.3	95.3	89.4
Audio and video materials	-	5.1	5.4	4.3

Source: NCES, 2014 Digest of Education Statistics

According to this data, school libraries nationally have about 16% more the books per 100 students than Arkansas school libraries.[15] However, Arkansas schools have more audio and video materials than the national average. Arkansas expenditures for school library materials equal the national average.

2011-12	U.S.	Arkansas
Books per 100 students	2,188	1,880
Audio and video materials per 100 students	81	96
Total expenditures per 100 students	$16.00	$16.00

Source: NCES, 2014 Digest of Education Statistics

The BLR asked Arkansas teachers how satisfied they are with the amount of library materials available to their students.

Teacher Survey Question: Does your school have an adequate supply of high-quality text books and other reading materials for students in your school media center?

Most teachers believe their school library's reading selection is sufficient, but 17% said their media center's reading materials are lacking. Notably, more teachers said they were satisfied with their school library collections than said they were satisfied with the textbooks in their classrooms.

Sufficient reading material in library?

[14] National Center for Education Statistics, 2014 Digest of Education Statistics, Table 701.10 Selected statistics on public school libraries/media centers, by level of school: Selected years, 1999-2000 through 2011-12.

[15] National Center for Education Statistics, 2014 Digest of Education Statistics, Table 701.30 Selected statistics on public school libraries/media centers, by state: 2011-12.

The following table shows district and charter school expenditures for library materials from all funding sources. The table shows the overall spending on these library materials has declined about 18% between 2011 and 2015.

	Library Books	eLibrary Books and ePublications	Periodicals	Audiovisual Materials	Total Per Student
2011	$5,634,083	$4,971	$638,304	$365,010	$14
2012	$5,367,700	$14,957	$664,238	$353,402	$14
2013	$4,771,569	$74,894	$595,008	$343,926	$12
2014	$4,505,726	$209,849	$546,499	$192,203	$12
2015	$4,535,268	$188,526	$499,300	$228,807	$12

FORMATIVE ASSESSMENTS

Though the Education Committees did not add funding to the matrix for formative assessments, many districts consider it an important instructional tool for assessing student learning and guiding instruction. The district survey asked superintendents how much money they are spending on these tools.

District Survey Question: What was the total amount your district spent on The Learning Institute, NWEA or other formative assessment in 2014-15? (Do not include the cost of district staff to administer the assessments.) How much of that amount was spent using foundation funds?

Of the 231 school districts and 17 charter schools that responded to the survey, 47 school districts (20%) and six charter schools (35%) did not spend any money on formative assessments in 2014-15. Of those that did, districts and charter schools spent about $15 per student on average. The cost per student ranged from $0.87 in one district to just under $100 per student in another. However most districts and charter schools that did have formative assessment expenditures used funding other than foundation aid to make these purchases. Of the $15 per student that districts and charter schools spent on formative assessments, districts said less than $2 was spent from foundation funding.

TEACHER PURCHASE OF INSTRUCTIONAL MATERIALS

State statute requires school districts to provide each pre-K through 6th grade teacher $500 per class or $20 per student to spend on materials for class activities—whichever is higher (§ 6-21-303(b)). In 2006, the matrix was formulated to include $20 per elementary student to cover this cost. The statute does not specify how the money is to be provided; only that it must comply with each district's established reimbursement policy.

Principal Survey Question: Does your school provide money to each teacher for classroom supplies? If yes, how much?

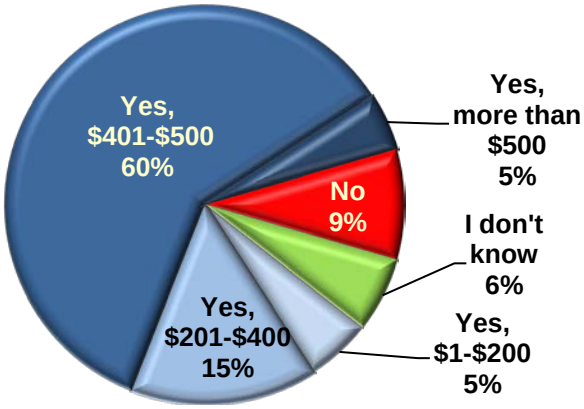
Of the 37 elementary school principals surveyed, all said they provide money to teachers for classroom supplies. Thirty-two of those principals (92%) said they provided at least $500 per classroom teacher. (One of those principals said the school provides the teacher with half of the $500 and retains half to pay for printing costs.) The remaining five said they provide between $250 and $300 per teacher.

Teacher Survey Question: Elementary (K-6) teachers only: Did your school/district provide you with money to purchase instructional materials (including electronic textbooks) for your classroom?

Of the 559 elementary teachers who responded to this question, about 85% said their school or district does provide money for supplies. However, 29% said they receive less than the statutory amount or do not receive any money at all. About 35 elementary teachers who completed the survey did not respond to this question.

State statute calls for ADE to provide a stipend of at least $100 per class to each elementary school for necessary supplies or equipment for visual art and music classes (§ 6-16-130(a)(4)). The statute specifies that this funding is contingent on the appropriation and availability of funding. According to the Department of Education, there has never been an appropriation or funding established for this purpose.

District Provides Money for Supplies?

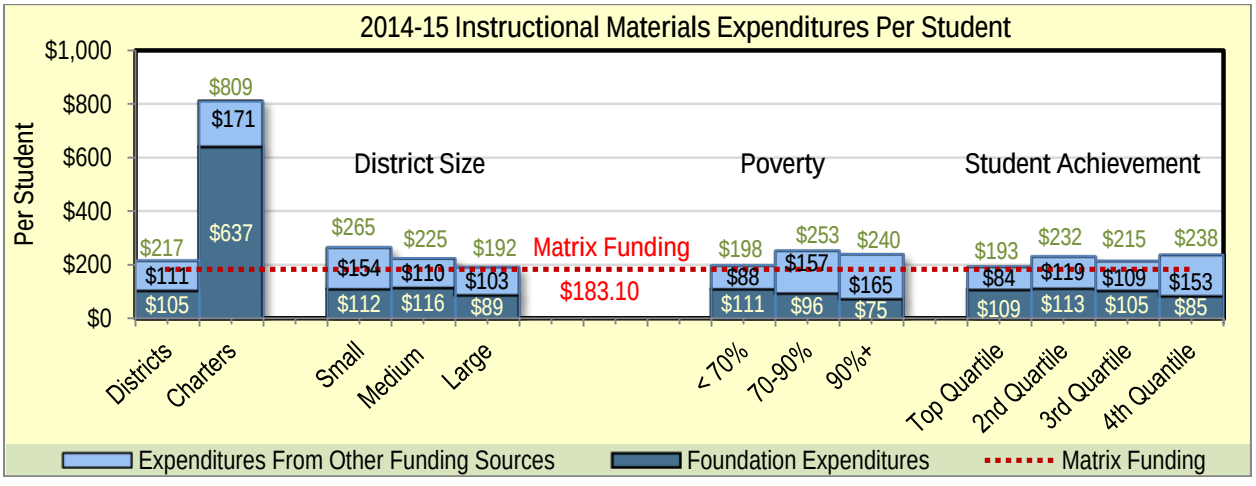


DISTRICT AND CHARTER SCHOOL EXPENDITURES

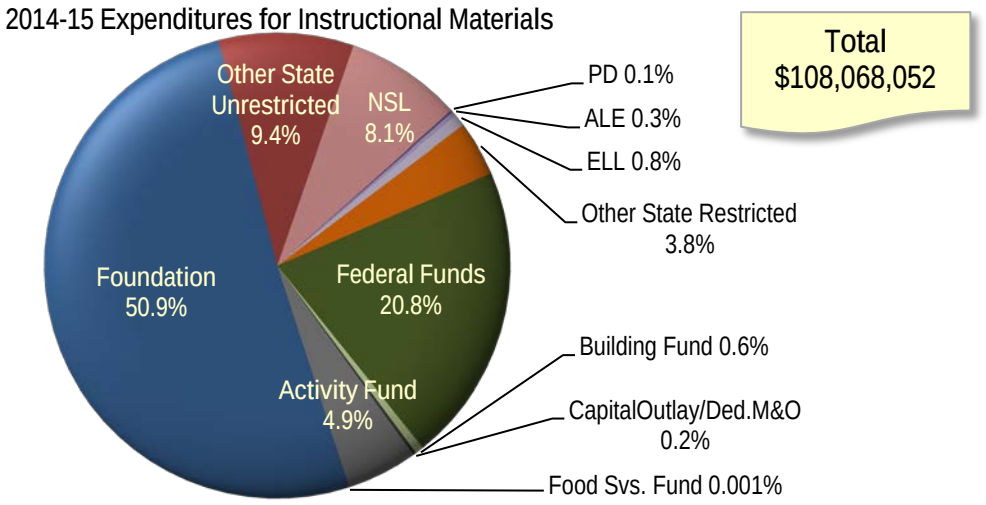
In 2014-15, districts and charter schools collectively spent more than $55 million in foundation funding on instructional materials. This equates to about $117 per student in 2014-15, compared with $183.10 funded in the matrix.

Instructional Materials: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$84,170,792	$64,024,240
2014-15	$86,282,562	$55,048,194

School districts spent about $105 per student from foundation funding on instructional materials and about $217 per student from all funding sources. On average, charter schools spent $637 per student from foundation funding, well above the matrix funding amount for instructional materials. However, one charter school had unusually high expenditures for instructional materials—more than $3,300 per student from all funding sources. If this one school is removed from the analysis, charter schools would have logged $177 per student in foundation funding on instructional materials, which is below the matrix amount. Districts differed very little in per-student foundation funding expenditures for instructional materials when grouped by size, but large districts spent less foundation funding and less overall than the other two groups. High-poverty districts, spent less foundation funding than the more affluent districts, but made up for that difference using other types of funds. Spending varied little based on student achievement groupings, with the exception of the lowest achieving group. That group spent less foundation funding per student on instructional materials, but they spent more overall than the other three groups.



One reason districts spent less foundation funding on instructional materials than they were provided may be that they have other sources of funding to use for this purpose. Districts use foundation funding to cover about 51% of their total expenditures for instructional materials. Other sources of funds used include federal funds, other state unrestricted funds and state NSL funding.



STATE RANKING

NCES provides data on each state's expenditures for instructional supplies and textbooks (classroom textbooks and library books). The most recent data available for all states are from 2012-13. According to the NCES data, Arkansas schools spent $377.45 per student on instructional supplies and $40.37 per student on textbooks in 2012-13. (The enrollment data used to calculate textbook expenditures per 500 students include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Instructional Supplies: Arkansas's Rank	Textbooks*: Arkansas's Rank
All States and Washington D.C. (51)	7th highest	30th highest
SREB States (16)	3rd highest	12th highest
Surrounding States (7, including AR)	2nd highest	6th highest

*Rank does not include eight states, including Texas, for which data were not available.

EXTRA DUTY FUNDS

There are many extracurricular activities in all levels of school, including sports, clubs, debate, school publications, student council, and other organizations and events. Schools use extra duty funds to pay stipends for teachers who coach athletics and those who supervise after-school clubs or other extracurricular activities, such as the newspaper or the yearbook.

CURRENT RESEARCH

Massoni (2011) states, in his review of research, those extracurricular activities serve essentially the same purposes as the more conventional curriculum. They provide opportunities for students to apply knowledge and skills learned in the classroom. According to this review, the positive effects of extracurricular activities include learning leadership, teamwork, interaction skills, organization, and responsibility. Extracurricular activities enhance self-esteem and achievement. According to research, students at risk of failing and dropping out of school benefit even more than other students from extracurricular activities (Massoni, 2011; Seow & Pan, 2014).

Statute and Standards

There are no statutory or regulatory requirements that schools employ personnel for extracurricular or athletic activities.

COST OF EXTRA DUTY FUNDS

In 2003, the Joint Adequacy Committee recommended providing $90 per student for extra duty activities. The amount was calculated based on $60 per student for middle schools and $120 per student for high schools. Although a panel of education professionals convened for the Adequacy Study asked that $30 per student be added for elementary schools, the Committee did not recommend additional funds for these younger students.

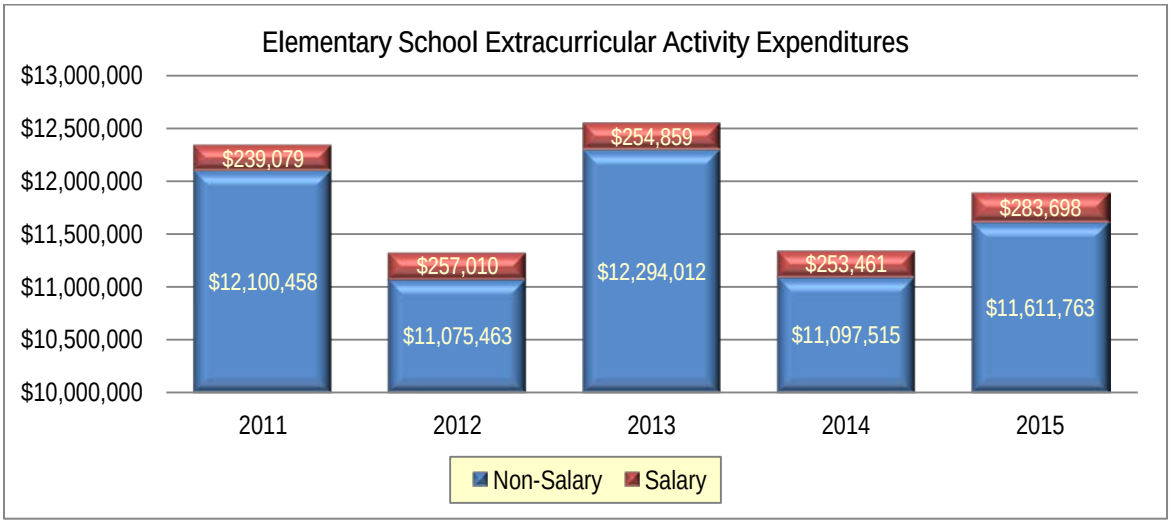
In their 2006 report, Picus and Associates wrote that students who are engaged in extracurricular activities tend to "perform better academically than students not so engaged, though too much extra-curricular activity can be a detriment to academic learning." They noted that while districts received $90 per student for extra duty funds, they actually spent $215 per student for activities during the 2004-05 school year, most of which was spent on athletics. They argued that while athletics are important, "we are not aware of any research that suggests the benefits of highly competitive interscholastic athletic programs is any more important in improving student learning than more modest athletic programs." They further argued that funding for athletic coaches should be at the same level as the funding provided for stipends for other extra-curricular activities. They recommended adding only an inflationary adjustment to the extra duty funding in the matrix, increasing the amount to $100 per student, and suggested that districts wanting to spend more on athletics could do so using local funds.

The consultants' 2006 report recommended $100 per student, but that recommendation was based on an earlier miscalculation in the original matrix. The Adequacy Subcommittee determined that the original number did not properly weight the funding amount to account for the fact that elementary students, who made up nearly half of the student population, did not require extra duty funding. The General Assembly corrected the calculation in 2007 by applying the consultants' 2003 recommendation to the 2005-06 count of elementary, middle and high schools. That calculation resulted in a per-student cost of $48.84, which was rounded to $50 for the 2006-07 matrix level. The matrix amount for extra duty pay was developed using the following calculations:

Basis for Extra Duty Pay				
School/Grade	**2005-06 Enrollment**	**% of Total**	**Unit Price**	**Weighted Cost**
Elementary	224,241	48.34%	$0	$0
Middle	101,739	21.93%	$60	$13.16
Secondary	137,942	29.73%	$120	$35.68
Totals	**463,922**	**100%**		**$48.84**

In the years since the funding amount was set, the extra duty line gradually increased as the foundation funding amount received annual inflationary increases.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for extra duty by 6.7% for FY16 and 6.3% FY17. The Committees reasoned that the extra duty funding level did not account for the extracurricular activities in elementary schools that are increasingly common, particularly STEM-related activities. The following chart shows that elementary schools spent between $11 million and $12.5 million on extracurricular activities (excluding athletics) between 2011 and 2015 from all funding sources. This equates to between $24 and $27 per student for all types of expenditures (staffing, materials, etc.). However, just a small fraction of those expenditures (less than $1 per student) was for salary and benefit-related expenditures, which is what extra duty funds are intended to cover.



Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for extra duty:

	2016	2017
Per-Student Rate	$61.05	$64.90
% Change	6.73%	6.31%

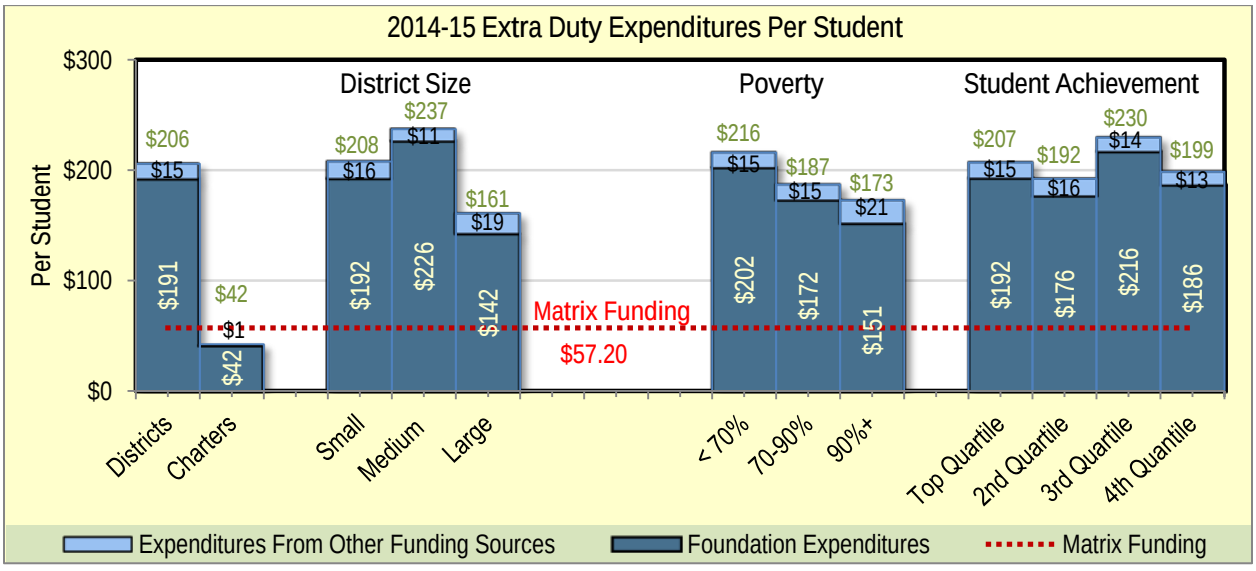
DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools spent $88.6 million for extra duty, or about $188 per student. That's more than three times the amount provided in the matrix. The majority of the expenditures in 2014-15 ($82.4 million, or about 93%) paid for athletic directors and other athletics staff. The remaining $6.1 million was spent on extra duty for interschool scholastic activities.

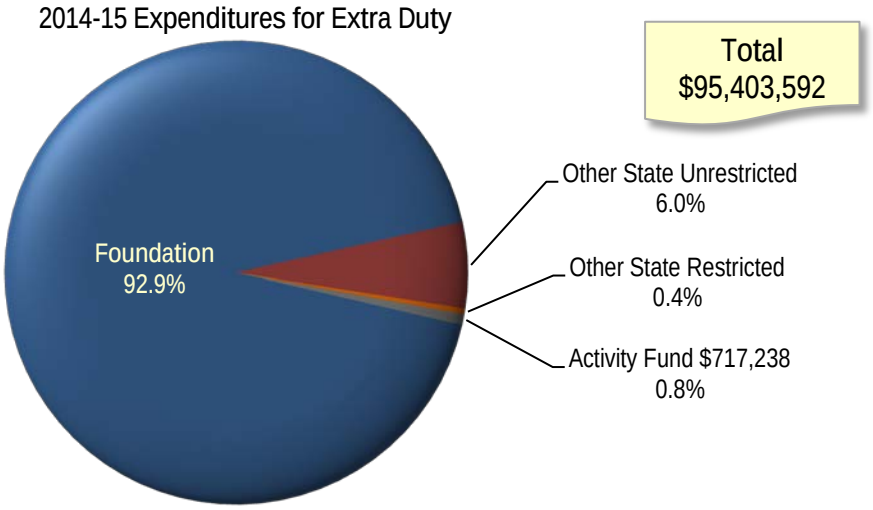
Extra Duty: Foundation Funding and Expenditures

	Funding	Expenditures
2013-14	$26,294,600	$84,541,905
2014-15	$26,954,465	$88,621,275

Traditional districts spent 4.5 times more foundation funding per student on extra duty staffing than open-enrollment schools. Charter schools' limited spending is likely due to the fact that these schools have limited athletics programs. Mid-sized districts spent more per student on extra duty than large or small districts. Districts also spent less per student as their concentrations of poverty increased.



Districts used foundation funding to cover 93% of all extra duty expenses. They also used other state unrestricted funding and activity funds to pay these costs.



SUPERVISORY AIDES

Supervisory aides are staff who help students get on and off buses in the morning and afternoon and supervise lunch and recess periods.

Statute and Standards

There are no statutory or regulatory requirements that schools employ supervisory aides. However, state law prohibits districts from assigning teachers to more than 60 minutes of "non-instructional duties" per week without providing them additional pay (§ 6-17-117). Additionally state law requires school districts to provide teachers with at least a 30-minute uninterrupted lunch period free of supervisory duties.

COST OF SUPERVISORY AIDES

During the 2003 Adequacy Study, the Joint Adequacy Committee took the advice of panels of Arkansas educators and provided $35 per student to pay for supervisory aides to monitor students getting on and off the bus and during lunch and recess. Although the state accreditation standards do not specifically require supervisory aides, the educator panels urged the Legislature to include this funding due to a law passed in 2003 limiting the amount of time teachers may be assigned to these supervisory duties.

When the consultants were rehired in 2006, they noted that the original $35 per student was intended to provide two full-time supervisory aides for a school of 500. They again recommended two supervisory aides, but they suggested increasing the funding amount to $98.70 per student. This higher amount was based on a salary of $24,676 each.

The Adequacy Study Oversight Subcommittee, however, determined that a school of 500 students would require just one supervisory aide each day. They based this conclusion on a 2006 survey conducted by ADE in which districts were asked to submit the total hours spent for supervisory duties and the cost of those hours. That data indicated that the average number of supervisory hours per day per student equaled .01742, or 8.71 hours per day for a school of 500 students. The average salary and benefit cost of this time was $87.21 per hour. Due to the statutory time restrictions, teachers could fill only 6.28 hours of the 8.71 supervisory hours needed, leaving 2.43 hours that would need to be filled by a non-teacher. For this amount of time, the Adequacy Subcommittee determined that one supervisory aide would be adequate, but increased the level of

funding by 33%, based on the information provided by ADE. The 2014-15 matrix funding amount of $54.70 provided a salary of $28,350 (not including benefits) for one supervisory aide.

In the years since the funding amount was set, the supervisory aide line gradually increased as the foundation funding amount received annual inflationary increases through 2014-15. In their final report of the 2014 Adequacy Study, the Education Committees recommended decreasing the per-student foundation funding rate for supervisory aides by 11.8% for FY16 with no increase for FY17. The Committees reasoned that districts had spent only 20% of the foundation funding provided for supervisory aides. Act 1248 of 2015 set the per-student foundation funding rate to include the following amounts for supervisory aides:

	2016	2017
Per-Student Rate	$50	$50
% Change	-11.82%	0%

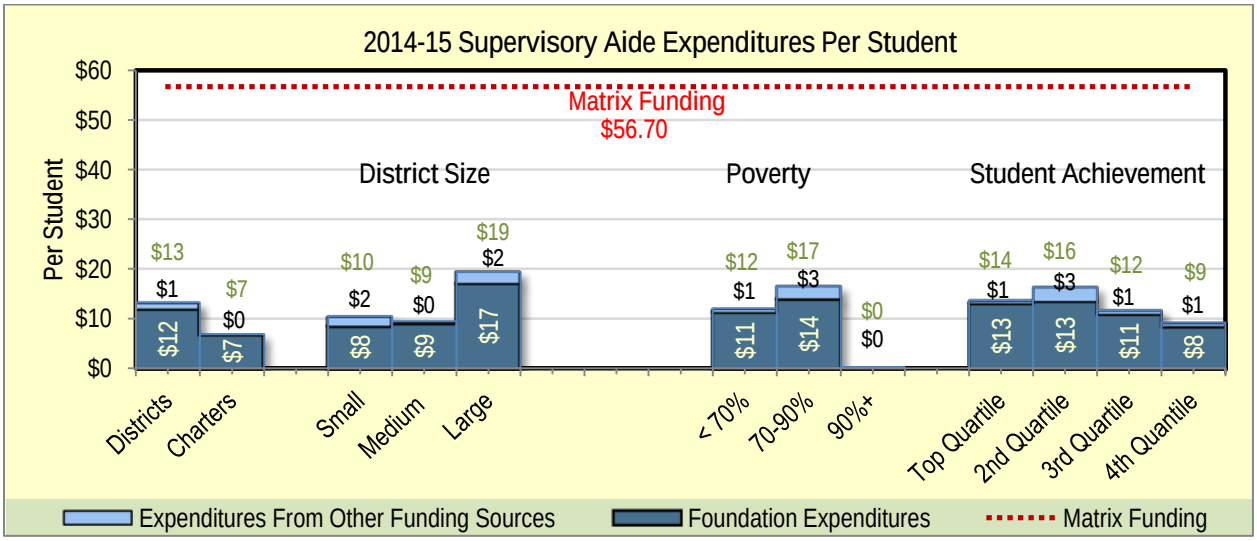
In school surveys conducted for past adequacy studies, principals were asked to discuss their use of supervisory aides. Most indicated that they do not pay for additional time but rather work within the 60 minutes of duty allowed under law, filling in with other classified personnel when needed. Still, a number administrators feel the 60-minute statutory restriction coupled with teachers' required duty-free lunch left insufficient time for coverage of supervisory duties. Similar responses were elicited from a principal survey question the BLR asked. See pages 94-96 for the full survey responses from superintendents and principals.

DISTRICT AND CHARTER SCHOOL EXPENDITURES

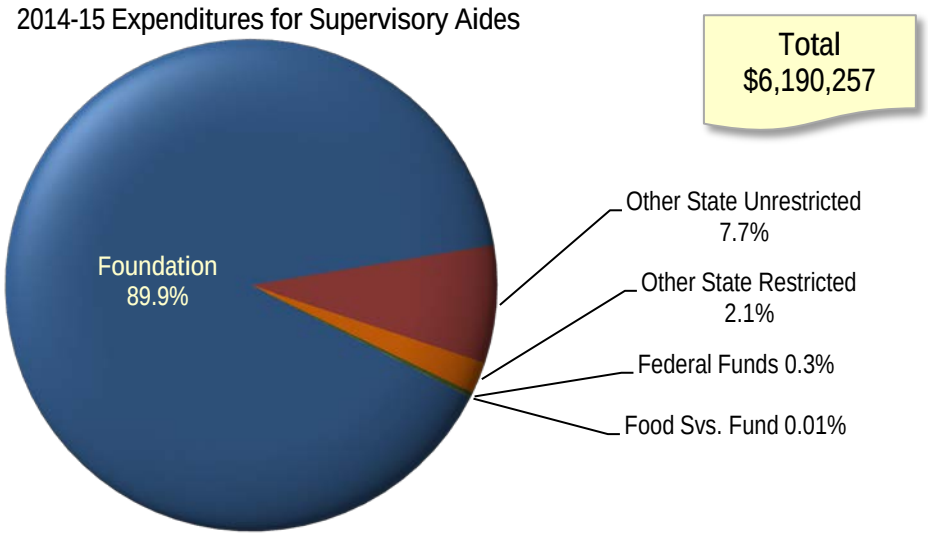
Despite the hassles administrators experience due to limits on teachers' duty time, the restrictions did not cause districts to spend more money on supervisory aides than they received. Districts and charter schools spent about a fifth of the foundation funding allocated for this purpose. They collectively spent about $5.6 million in foundation funds on supervisory aides in 2014-15, or about $12 per student.

Supervisory Aides: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$26,060,662	$5,576,642
2014-15	$26,718,849	$5,564,154

Large districts spent nearly twice as much foundation funding per student for supervisory aides as small districts, although the overall amounts are small. High-poverty districts spent just 24 cents per student for supervisory aides. Districts differed very little in their spending when grouped by student achievement, except low achieving districts spent less foundation funding than the other three groups.



Even when considering expenditures from all funding sources, districts and charter schools collectively spent just $13 per student. The majority of all expenditures for supervisory aides (90%) was funded with foundation funding.



SUBSTITUTES

When teachers are absent, schools must rely on substitute teachers to manage classes.

CURRENT RESEARCH

Research indicates that U.S. public school students, on average, spend the equivalent of between 6 months and one year with a substitute teacher during their K-12 school tenure (Clotfelter, Ladd, & Vigdor, 2009; Glatfelter, 2006; Kronholz, 2013; Miller, Murnane, & Willet, 2007). This research also shows that training for substitute teachers is minimal and often does not include curriculum, management, or pedagogical skills. Credential requirements for substitutes vary widely across districts and states. Many states require only a high school diploma for substitute teachers, and in several instances, no specific training is needed. Even when college degrees are required, they may not be in teaching or relevant to the substitution assignment. Most states report a shortage of substitute teachers, due to low pay and difficulties of managing classes (Clotfelter et al., 2009; Miller et al., 2007). Too often substitutes simply do not have the training or experience to teach content or successfully manage the class (Gershenson, 2012).

Yet, researchers estimate that substitutes have substantial impact on student learning. For example, well-respected Duke University investigators (Coltfelter et al., 2009) found that being taught by a substitute for 10 days per year has a more substantial effect on math scores than changing schools, and its effect is about half of the effect poverty has on student performance. Researchers at Columbia University concluded that the effect of using a substitute for even one day is greater than the effects of replacing an average teacher with a teacher in the 10th percentile for math or the 20th percentile for English (Herrmann & Rockoff, 2010).

Statute and Standards

State statute requires districts to provide teachers with one day of paid sick leave per contract month (§ 6-17-1204), or a total of nine or ten days for most teachers.

State law requires substitutes who teach more than 30 consecutive days to have a bachelor's degree or be licensed to teach (§ 6-15-1004(e)). The only requirement for all other substitutes is a high school diploma or Graduate Equivalent Degree (GED) (§ 6-15-1004(f)). The statutory requirements under § 6-17-1004(e) and (f), however, do not apply to nondegreed vocational technical teachers and can be waived if they "impose an undue hardship" on the district.

Meeting the Requirements

No schools were cited for a violation of the law governing substitutes.

COST OF SUBSTITUTES

The 2003 consultants' report notes that the Joint Adequacy Committee recommended districts receive funding to pay for 10 days for each classroom teacher and specialist teacher (non-core) in the matrix. The Committee calculated the funding amount based on an average daily salary of $100, plus benefits, or $121 per day.

In 2006, Picus and Associates noted that the funding level the General Assembly had approved for substitutes appeared to adequately cover what districts were spending on substitute teachers. However, they noted that districts tended to pay less than the $100 per day salary on which the matrix is based. "The data actually showed that the average daily reimbursement rate for substitute teachers was below the average wage of a building custodian. Such a low number indicates a problem; either qualified substitute teachers are not available so the wage paid equals the worth of the substitute hired, or substitute wages need to increase to allow districts to hire more qualified substitute teachers" (Picus, 2003, p. 46).

The consultants recommended that the funding level for substitute pay continue to be based on an average daily salary of $100. The Committee, however, reduced the substitute funding allocation based on evidence that the average daily pay for substitutes is lower than $100. Instead, the Committee used a base salary of $75 per day for substitute teachers and set the funding amount at $59 per pupil. The funding level increased annually through 2014-15 as inflationary adjustments were applied to the foundation funding rate.

In their 2014 Desk Audit of Arkansas's education finance system, Odden et al. reaffirmed their earlier work by recommending the state provide funding for substitute teachers equal to 5% of the cost for teacher salaries [including classroom teachers (but not special education teachers) and instructional facilitators]. Based on the rate found in many states, this provides funding approximately equal to 10 substitute days per year for all teachers.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for substitutes by 2% for FY16 and FY17. The Committees reasoned that districts spent more foundation funding on substitutes than the amount provided in the matrix. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for substitutes:

	2016	2017
Per-Student Rate	$67.70	$69.00
% Change	2%	2%

DISTRICT AND CHARTER SCHOOL EXPENDITURES

Arkansas's 2014-15 substitute funding rate of $66.30 supported an average daily rate of pay of about $109, plus 22% in benefits, for the 24.94 classroom teachers in the matrix. To determine how this amount compared with districts' actual practice, the BLR asked superintendents to provide information on their substitute pay rates. On average, districts paid a rate that is considerably below the amount supported in the matrix.

District Survey Question: What is your district's average daily pay for substitutes who are certified teachers? Substitutes with degrees but who are not certified? Substitutes with no degree?

	District/Charter Average	Range
Certified Teachers	$76.32	$46.77-$250.67
Substitutes with degrees but not certified	$69.78	$55-$127*
Substitutes with no degree	$66.36	$50-$150.25**

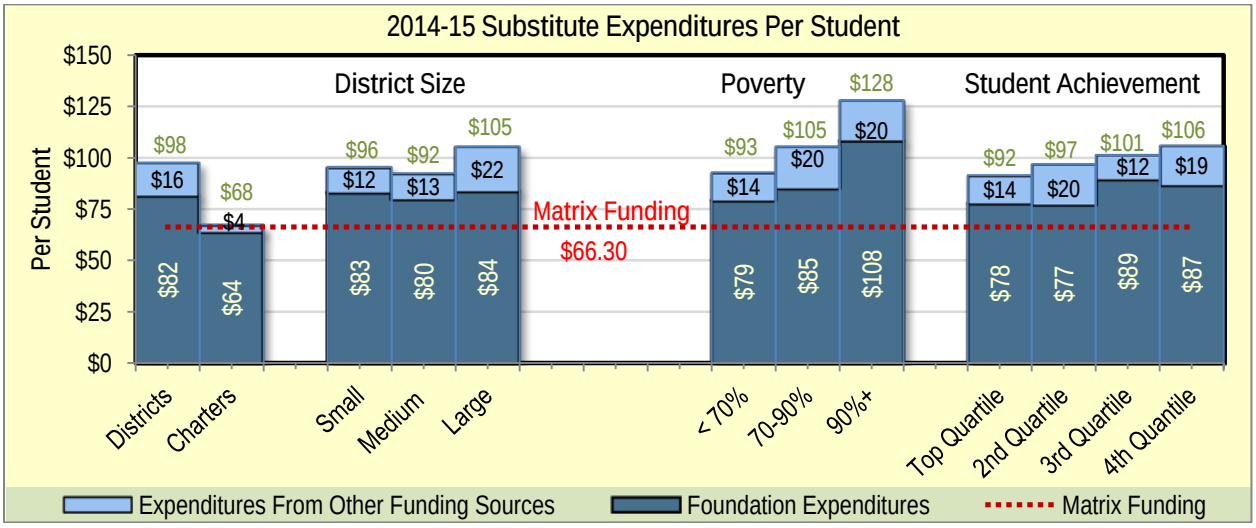
*Excludes one district that said it pays $900 per day.
**Excludes one district that said it pays $528.44 per day.

A review of foundation funding expenditures that districts and charter schools recorded in APSCN indicates districts and charter schools spent more foundation funding on substitutes than they received for that purpose in 2014-15. Collectively, they spent $38.3 million from foundation funding, or about $81 per student.

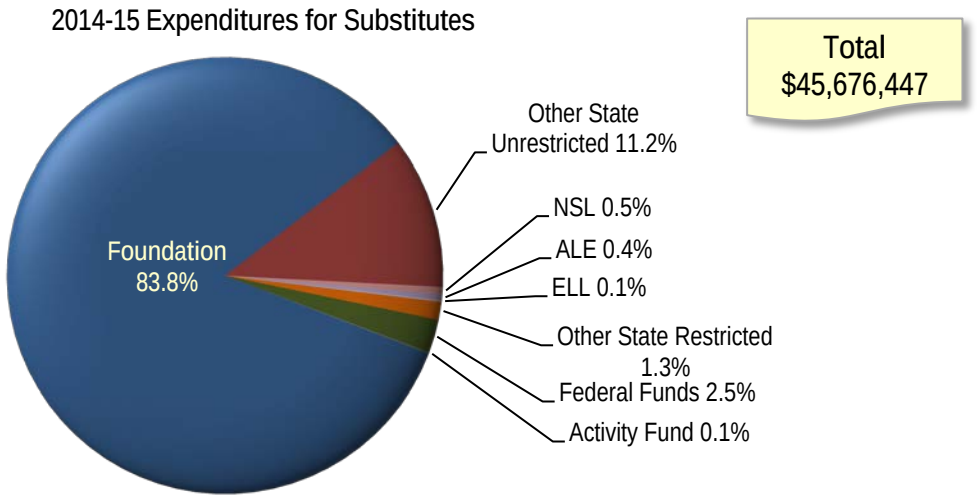
Substitutes: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$30,505,479	$35,731,486
2014-15	$31,242,675	$38,266,572

School districts spent about 24% more foundation funding than the matrix provided for substitutes. Because districts' average daily rate of pay for substitutes ($76 per day) is below the rate provided in the matrix ($109, plus benefits), districts may have a need to hire substitutes for more than 10 days per teacher or for substitutes to cover more types of staff beyond classroom teachers (e.g., special education teachers, guidance counselors, etc.). School districts spent more foundation funding per student than charter schools. Even when considering all spending (from all funding sources) on substitutes, districts spent about 44% more than charter schools.

When grouped by district size, districts differed only minimally in the levels of foundation funding spent on substitutes, though large districts spent more money from all funding sources than the other two groups of districts. High-poverty districts spent considerably more foundation funding than the other two groups. These differences may be a reflection of teacher absenteeism in these districts. There was minimal difference among the districts when grouped by student achievement, although low achieving districts generally spent more per student than higher achieving districts.



Districts and charter schools used foundation funding to cover about 84% of all their expenditures for substitutes.



DISTRICT-LEVEL RESOURCES

The original matrix included a line item called “carry-forward” that represented what might be best described as miscellaneous expenditures not otherwise identified in the matrix. In the 2003 report, the consultants recommended line items and funding for many school costs that would be included in the "carry-forward" line item.

> With these assumptions and methods, we began to calculate the additional costs. To do so, we took total expenditures of school districts (minus expenditures for debt and expenditures supported by federal sources) and divided them into two parts. The first were those expenditures that would be "carried forward" unchanged, and included such things as fiscal services, board and legal services, executive administration (superintendent), athletics, facilities and capital other than debt, community services, food services, and other non-instructional services, operations and maintenance, transportation, technology services, certain instructional support such as drug and crime prevention and tuition paid to other local school districts (Picus, 2003 p. 65).

Identifying and quantifying those expenditures more precisely was one of the primary purposes of the 2006 consultants' report. The consultants separated the carry-forward amount into three line items that included: operations and maintenance, central office expenses, and transportation expenses.

OPERATIONS AND MAINTENANCE

This line of the matrix includes the staff and other resources necessary to maintain school facilities and grounds and keep school buildings clean, heated, and cooled.

Statute and Standards

State statute requires districts to spend at least 9% of their foundation funding to pay for utilities, custodial services, maintenance, repair, and renovation activities. If districts do not spend the required 9%, they must transfer unspent funds into an escrow account to be used for future O&M expenses (§ 6-21-808(d)).

ADE rules require each district to “provide or acquire all risk property coverage for direct physical loss of or damage to school district buildings, structures, and business personal property (contents)” (Rules Governing Property Insurance Requirements, 4.01).

There are no required minimum staffing levels for operations and maintenance personnel.

Meeting the Requirements

At the end of the 2014-15 school year, two districts had not spent the full 9% on O&M, according to an ADE Commissioner’s Memo.[16]

The Arkansas Division of Public School Academic Facilities and Transportation checks annually that the insured values of districts’ buildings comply with state law, and no districts were cited for a violation in 2014-15.[17]

COST OF OPERATIONS AND MAINTENANCE

In their 2003 report, Picus and Associates did not provide a recommendation on funding for operations and maintenance. Instead, they noted that the Joint Adequacy Committee recommended that the existing amounts districts were spending on operations and maintenance should be provided to school districts. Any changes to those amounts were to be identified by a separate study of school facilities needs. Until the study could be completed, the General Assembly

[16] ADE Commissioner’s Memo, 9% Requirement for Utilities and Facilities Maintenance, FIN-16-008, July, 28, 2015.
[17] Montgomery, B., Arkansas Division of Public School Academic Facilities and Transportation, May 5, 2016 email.

chose to include the funding for operations and maintenance within a general category for district-level expenditures, called the carry-forward. The matrix included $1,152 per student for this purpose.

In November 2004, the Task Force to the Joint Committee on Educational Facilities released its final report, which noted the findings of the 32nd Annual Maintenance and Operations Study conducted by *American School and University Magazine* (2003). That national study found that, on average, the cost of school district operations and maintenance is approximately 9% of a district's total expenditures. The General Assembly then passed Act 1426 of 2005, which required districts to spend at least 9% of their foundation funding to pay for utilities, custodial services, maintenance, repair, and renovation activities.

In 2006, Picus and Associates recommended providing $594 per student for O&M to cover custodians, maintenance workers, groundskeepers, maintenance supplies, and utilities.

	Cost Per Pupil	Average Salary in 2006
Custodians	$170	$29,471
Maintenance	$65	$29,471
Supplies	$97	NA
Grounds	$65	$29,471
Utilities	$160	NA
Insurance	$37	NA
TOTAL	**$594**	

The Adequacy Subcommittee determined that the consultants' recommendations were based on costs in higher priced geographical areas of the country and on more duties than are required in Arkansas. The House and Senate Interim Committees on Education asked the Academic Facilities Oversight Committee to study the issue further. The Facilities Oversight Committee then recommended setting the O&M funding at 9% of the foundation funding rate to mirror the statute established by Act 1426 of 2005. This amount included funding to support a director of operations and maintenance and a secretary.

In addition to the 9% for O&M, the 2006 Adequacy Subcommittee also recommended providing $27 per student for property insurance. The amount for property insurance was derived through a calculation made in January 2007, when ADE analyzed the total state school district expenditures for property insurance. The total was $12,350,868, which was divided by 456,648.56 ADM with the result being $27 expended per student. The 2006 Adequacy Subcommittee also recommended that districts be required to spend the $27 per student only on property insurance. That recommendation never became law, but in 2007, the General Assembly authorized the Commission for Arkansas Public School Academic Facilities and Transportation to promulgate rules to establish a property insurance requirement (§ 6-21-114(d)(2)(A)). Rule 4.01 of the Division's Rules Governing Property Insurance Requirements requires all school districts to have Risk property coverage for school district buildings, structures, and their contents. District property must be insured for at least 90% of the replacement cost to be eligible for state facilities funding assistance.

When the General Assembly established the O&M funding level in 2006, the overall foundation funding level had not been finalized. The Legislature used an amount they knew would exceed the final foundation amount to make sure the O&M funding level would be adequate. The total O&M amount in 2007-08 and 2008-09 was set at $581 per student, which included $554 for the 9% of foundation funding and $27 for property insurance. In the years since the funding amount was set, the O&M line gradually increased as the foundation funding amount received annual inflationary increases.

In their final report of the 2014 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for operations and maintenance by 2% for FY16 and keeping it flat for FY17. The Committees noted that districts had spent all of the funding they received for O&M in 2012-13. They allowed for the option of increasing the funding for the second year of the biennium if additional information indicated an increase was warranted. Act 1248 of

2015 increased the per-student foundation funding rate to include the following amounts for operations and maintenance:

	2016	2017
Per-Student Rate	$664.90	$664.90
% Change	2%	0%

O&M STAFFING LEVELS

The state has no required minimum staffing level for operations and maintenance personnel, but the state's Public School Facilities, Maintenance, Repair and Renovation Manual, maintained by the Division of Public School Academic Facilities and Transportation (Facilities Division), provides the following staffing recommendations:

Operations and Maintenance Position	Recommended Staffing Level
Custodians	1 FTE per 18,000-20,000 square feet
Grounds/General Labor Personnel	1 FTE per 18-20 acres
Maintenance Personnel	1 FTE per 80,000-90,000 square feet

According to data provided by the Facilities Division, districts are slightly under-staffed for custodians on average and slightly overstaffed on maintenance staff. The Division's FTE data come from staff counts districts provided to the Facilities Division in their facilities master plans. About 91% of the districts (212) had fewer custodial FTEs than recommended. About 42% of districts (99) had fewer maintenance FTEs than recommended. The Facilities Division does not have data on grounds staff or district acreage.

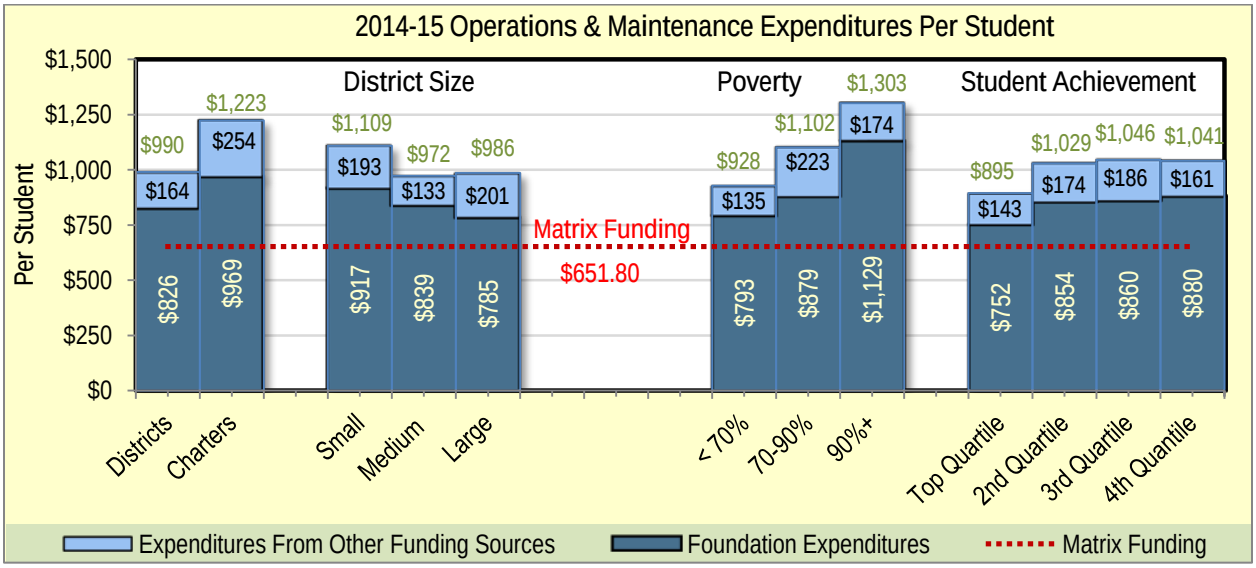
Operations and Maintenance Position	Actual Staffing Ratios for Current Year
Custodians	0.7 FTE per 20,000 square feet
Grounds/General Labor Personnel	Data are not available
Maintenance Personnel	1.22 FTE per 90,000 square feet

DISTRICT AND CHARTER SCHOOL EXPENDITURES

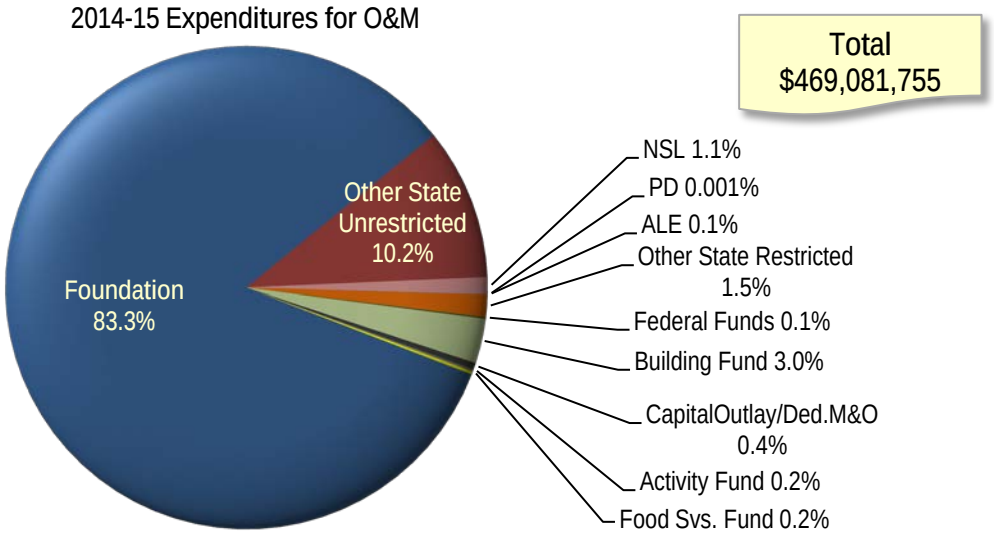
In 2014-15, districts and charter schools collectively spent $390.8 million in foundation funding on operations and maintenance. This equates to approximately $829 per student, which is considerably more than the $651.80 funded in the matrix.

O&M Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$299,580,644	$381,772,146
2014-15	$307,148,956	$390,752,820

Traditional districts spent less foundation funding per student on O&M than charter schools. This may be due in part to the fact that charter schools typically lease their school space rather than constructing and owning it. Charters schools recorded some building rent using expenditure codes that fall into the O&M category. Small districts spent more than large districts, which may result from larger districts having greater economies of scale. High-poverty districts spent considerably more per student than lower poverty districts. Districts in the highest achieving districts spent less per student on O&M than lower achieving districts, but the other three student achievement groups differed very little from one another.



Foundation funding was the primary source of funds districts used for their O&M expenditures. In 2014-15, foundation funding paid for about 83% of all O&M expenditures.



STATE RANKING

NCES provides data on total operations and maintenance expenditures in each state. The most recent data available for all states are from 2012-13. According to the NCES data, Arkansas schools spent $929.52 per student on O&M in 2012-13. (The enrollment data used to calculate the per-student O&M expenditures include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Per-Student Expenditures for Operations & Maintenance: Arkansas's Rank
All States and Washington D.C. (51)	31th highest
SREB States (16)	6th highest
Surrounding States (7, including AR)	3rd highest

CENTRAL OFFICE

The matrix provides funding for district-level administrative expenses including the salaries and benefits of the superintendent, as well as administration personnel (legal, fiscal, human resources, communications, etc.), district instructional and pupil support directors, and clerical staff. The central office line of the matrix also provides funding for activities of the local school board. In their 2006 report, Picus and Associates noted the importance of an effective central office in a district. They wrote, "The district office has the responsibility to organize and manage all aspects of the district including the curriculum and instructional program, as well as to implement national, state, and local reforms, oversee budgets, and provide necessary materials, equipment, facilities, and repairs to the schools" (Picus, 2006, p. 67).

Statute and Standards

The only central office position required by the state accreditation standards is the superintendent. Every school district with more than 300 students is required to employ one full-time superintendent.

Meeting the Requirements

One district was cited for a superintendent who was inadequately licensed.

COST OF THE CENTRAL OFFICE

In 2003, Picus and Associates did not provide a recommendation on funding for operations and maintenance. The General Assembly chose to include the funding for central office expenses within a general category called the carry-forward and included $1,152 per student in the matrix for this purpose.

When the consultants were rehired in 2006, they attempted to specify an adequate funding level for the central office. They noted that when they completed their first report for Arkansas in 2003, little research existed on the number of people and resources necessary for the central office. The issue is further complicated, they said, by the fact that some district office personnel, such as special education directors and federal coordinators, are partially funded with federal dollars. In 2006 the consultants contended, based on research completed in 2005, that a district of 3,500 students would need a central office staff of 17 people as described in the table below.

Consultants Basis For Recommendation: Central Office for District Size of 3,500 Students		
Superintendent's Office	**Positions**	**Associated Salary**
Superintendent	1	$118,748
Assistant Superintendent	1	$110,516
Secretary	2	$34,751
Business Office		
Business Manager	1	$54,940
Human Resources Manager	1	$110,516
Secretary	1	$34,751
Payroll Clerk	1	$34,751
Accounts Payable Clerk	1	$34,751
Curriculum and Support		
Director of Pupil Services	1	$110,516
Director of Special Education	1	$110,516
Secretary	3	$34,751
Technology		
Director of Technology	1	$110,516
Operations & Maintenance		
Director of M&O	1	$110,516
Secretary	1	$34,751
Total	17	

Prorating to a district size of 500 students, Picus and Associates reasoned, would require one-seventh of the staff described above. Based on this staffing level, the consultants recommended $328 per student for central office staff and another $263 for other miscellaneous central office needs, for a total of $591 per student.

The consultants' recommendation was based on a prototypical district of 3,500 students, but in Arkansas in 2006, only 26 of the districts, or 11%, had 3,500 or more students. To test the appropriateness of the recommended funding level, ADE obtained 2005-06 central office expenditures and personnel counts for districts with an ADM between 3,000 and 4,000. The average number of personnel was 17.82. The average total central office cost was $395 per ADM.

Based on this information, the Adequacy Subcommittee determined that the consultants' figures were "inflated because of being computed on higher-priced geographical areas and on more duties than are required in Arkansas." The Subcommittee, instead, recommended that central office expenses be funded at $376 per student. This figure represented the $395 per student in actual costs, less $19 per student for the Director of Operations and Maintenance and secretary positions that were included as part of the operations and maintenance line of the matrix.

The central office funding level has increased annually through 2014-15 as inflationary adjustments were applied to the foundation funding rate. In their final report of the 2014 Adequacy Study, the Education Committees recommended keeping the per-student foundation funding rate level for FY16 and increase it by 2% for FY17. The Committees reasoned that districts did not spend all of the foundation funding they received for central office resources. Therefore they decided to provide no increase for the first year of the biennium and apply a cost-of-living adjustment for the second year. Act 1248 of 2015 increased the per-student foundation funding rate to include the following amounts for the central office:

	2016	2017
Per-Student Rate	$430.20	$438.80
% Change	0%	2%

STATE RANKING

NCES provides data on the number of local education agency (LEA) administrators and LEA administrative support staff in each state. This NCES category includes superintendents, deputy superintendents, assistant superintendents, district-level business managers and instructional support staff. The most recent data available for all states are from 2013-14. According to the NCES data, Arkansas had a total of .61 LEA administrators per 500 students in 2013-14. (The enrollment data used to calculate the LEA administrators per 500 students include pre-K students who are excluded from the BLR's foundation funding analysis.)

	District Administrators: Arkansas's Rank
All States and Washington D.C. (51)	32nd highest
SREB States (16)	8th highest
Surrounding States (7, including AR)	3rd highest

The NCES category for LEA administrative support staff includes business office support, data processing employees, and secretarial and other clerical staff. In 2013-14, Arkansas had 2.43 administrative support staff per 500 students.

	District Administrative Support Staff: Arkansas's Rank
All States and Washington D.C. (51)	9th highest
SREB States (16)	2nd highest
Surrounding States (7, including AR)	2nd highest

NCES also provides data on total expenditures for district administration in each state. The most recent data available for all states are from 2012-13. According to the NCES data, Arkansas schools district spent $231.99 per student on district administration in 2012-13.

	Per-Student Expenditures for District Administration: Arkansas's Rank
All States and Washington D.C. (51)	27th highest
SREB States (16)	4th highest
Surrounding States (7, including AR)	5th highest

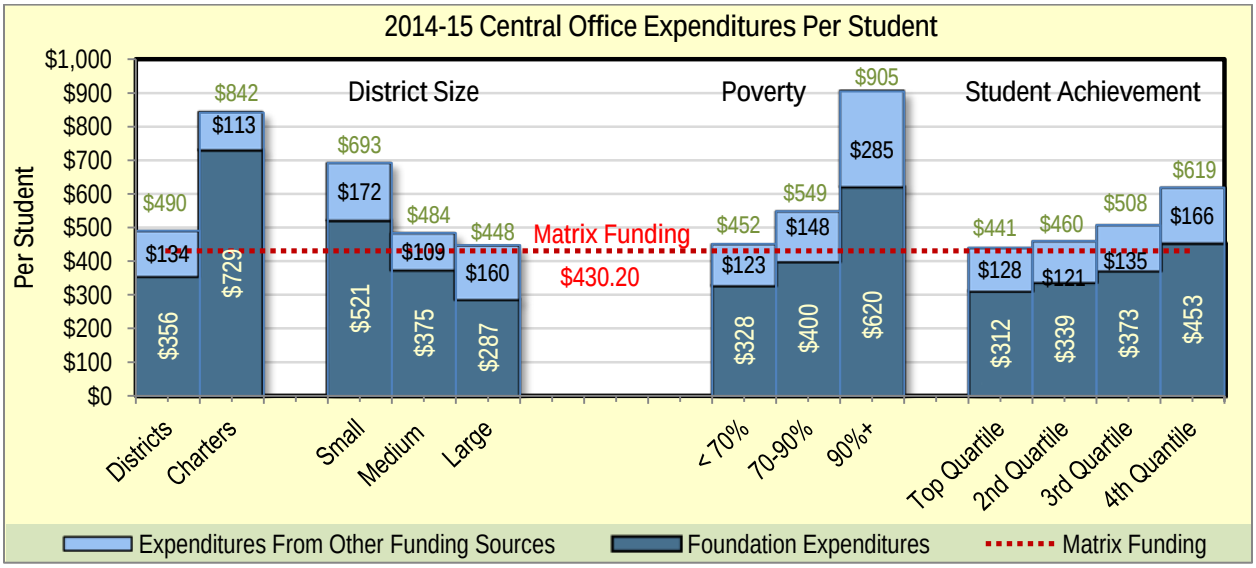
DISTRICT AND CHARTER SCHOOL EXPENDITURES

Districts and charter schools collectively spent about $171.7 million in foundation funding on central office expenditures in 2014-15. This equates to $364 per student, or about $66 per student less than the funding amount provided in the matrix.

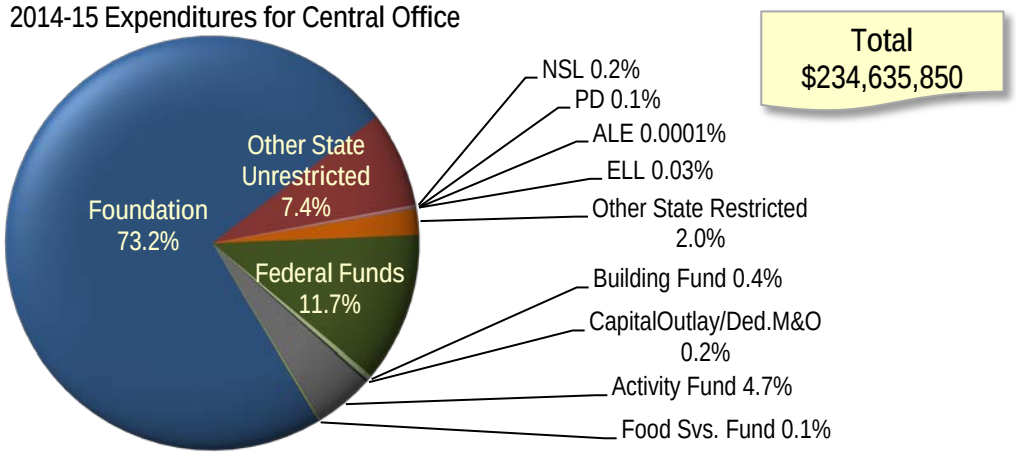
Central Office: Foundation Funding and Expenditures		
	Funding	Expenditures
2013-14	$197,724,161	$163,786,050
2014-15	$202,723,966	$171,720,120

The spending patterns for central office expenses differed considerably between traditional school districts and open-enrollment charter schools. While districts spent less foundation funding than they received for central office expenses, charter schools spent nearly $300 per student in foundation funding above the matrix amount. One reason for this level of expenditures appears to be large expenditures for educational and management consulting services, which far exceeded district spending in these areas. Charter school central office expenditures may also be higher due to some charter schools' small size. Four of the 18 charter schools had fewer than 100 students, and half had fewer than 350.

Similarly, small traditional school districts spent more per student on central office expenses than larger districts. High-poverty districts spent nearly twice the amount of foundation funding low-poverty districts spent. The lowest-achieving districts spent nearly 1.5 times the per-student foundation funding that the highest achieving districts spent.



Foundation funding was the primary source of funds for central office expenditures. Districts and charter schools used foundation funding to cover 73% of all their central office expenditures. Federal funds was another frequently used funding source for central office costs. Federal funds covered about 12% of all central office expenditures in 2014-15.



TRANSPORTATION

Transportation expenditures include school bus and district vehicle operations and maintenance, transportation personnel, insurance, equipment costs, and bus purchases. Transportation expenditures do not include expenditures for athletic or activity transportation.

Statute and Standards

State law does not require school districts to provide general transportation to students, although all districts provide some level of bussing services.

COST OF TRANSPORTATION

In 2003, Picus and Associates did not provide a recommendation on funding for transportation. The General Assembly chose to include the funding for central office expenses within a general category called the carry-forward and included $1,152 per student in the matrix for this purpose.

In their 2006 report, the consultants recommended funding transportation at $286 per student, based on districts' actual 2004-05 transportation expenses inflated for 2007-08. However, they noted that while the state transportation expenditures averaged around $286 per ADM, individual districts' expenditures vary considerably, from a low of $67 to a high of $695 per student. In a June 2006 presentation, the consultants recommended that the General Assembly collect better data on transportation operations and develop a funding formula based on student density, mileage or hours of operation, rather than on ADM. They recommended that the General Assembly consider moving the funding for transportation out of the matrix to be funded separately. Although each biennial Adequacy Study since 2006 has examined transportation expenditures, the General Assembly has not altered the funding distribution method. However, supplemental funding totaling $500,000 was provided in 2011-12 to 44 districts with high transportation costs.

In their final report of the 2014 Adequacy Study, the Education Committees recommended keeping the per-student foundation funding rate for transportation flat for FY16 and FY17. The Committees also recommended creating a separate, supplemental funding program for districts with high transportation costs. They recommended that the funding amount should be established at the equivalent of 2% of the funding provided for transportation in 2014-15 (about $3 million) and that the funding should be distributed by a method developed by the BLR. Act 1248 of 2015 set the per-student foundation funding rate to include the following amounts for transportation:

	2016	2017
Per-Student Rate	$321.20	$321.20
% Change	0%	0%

An additional $3 million was provided to the Department of Education through the Revenue Stabilization Act (Act 1145 of 2015) for 2015-16. However, no statutory language was included to direct ADE on how to distribute the funding to districts. Therefore ADE has the funding, but is under no obligation to spend it on high-cost transportation.

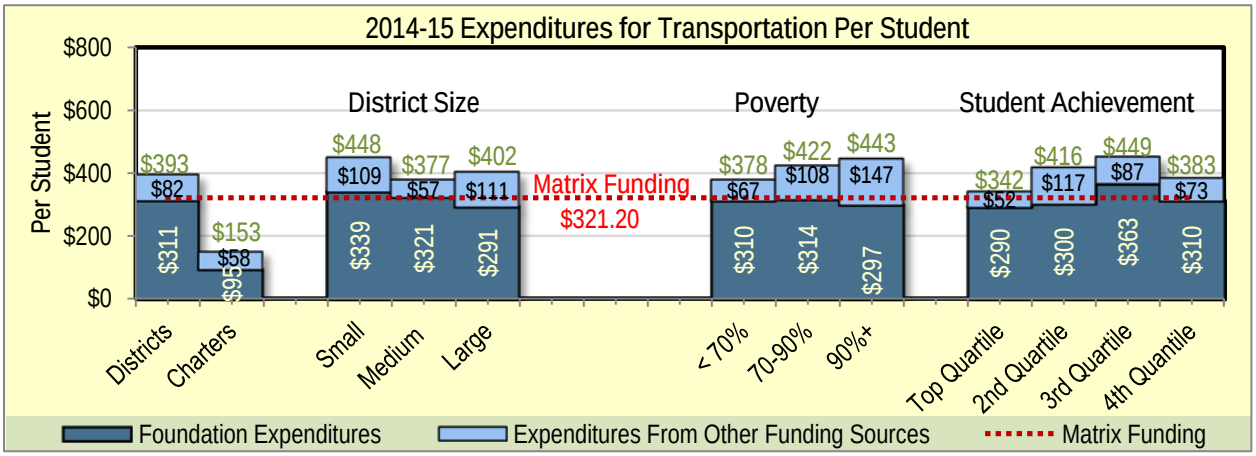
DISTRICT AND CHARTER SCHOOL EXPENDITURES

Districts and charter schools collectively spent about $144.5 million in foundation funding to cover their student transportation costs. This equates to $307 per student, which is about $14 less than the $321.20 provided in the matrix. The difference in individual districts' foundation funding expenditures for transportation in 2014-15 varied from a low of $0.61 per pupil to a high of $687.12 per pupil. Some districts may have low foundation funding expenditures for transportation because they receive other types of funding they can use to cover these costs, including Desegregation aid, Isolated funding or Special Needs Isolated funding. Foundation funding expenditures for transportation declined slightly between 2014 and 2015, which may be due, in part, to a drop in gasoline prices. District and charter expenditures on gasoline (from all funding sources) totaled nearly $31.4 million in 2013-14. Expenditures dropped by more than $8 million to $23.4 million in 2014-15.

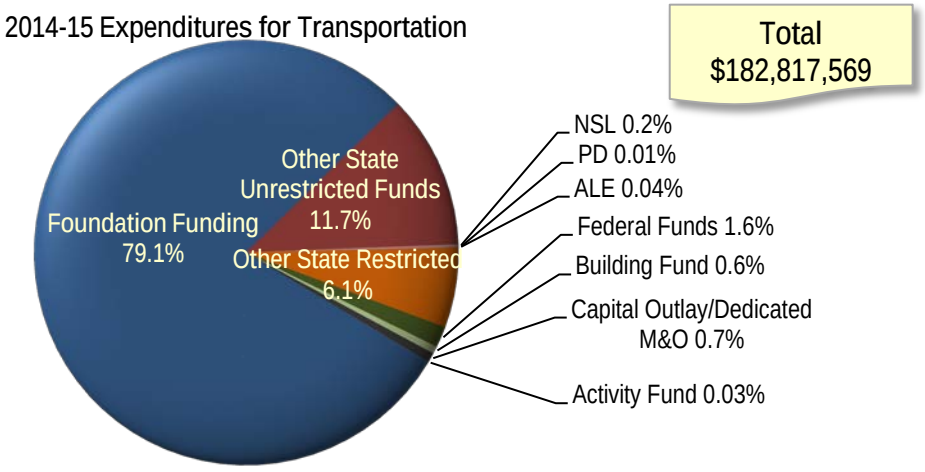
Transportation: Foundation Funding and Expenditures

	Funding	Expenditures
2013-14	$147,614,701	$145,544,469
2014-15	$151,359,688	$144,537,777

Charter schools had much lower transportation expenditures than traditional school districts. This is likely due to the fact that many charter schools do not provide daily transportation to students. Eight of the 18 charter schools had either no foundation funding transportation expenditures or had expenditures of less than $10 per student. Districts differed minimally on per-student foundation funding expenditures based on district size, though small districts' total spending on transportation outpaced larger districts. When grouped based on poverty levels, districts again differed minimally, although the highest poverty districts had greater total transportation expenditures per student than districts with lower concentrations of poverty.



Foundation funding covered 79% of districts' transportation expenditures. Other significant sources of funding used by districts included other unrestricted state funding, such as isolated funding, and state restricted funds.



STATE RANKING

NCES provides data on total transportation expenditures in each state. The most recent data available for all states are from 2012-13. According to the NCES data, Arkansas schools spent an average of $377.03 per student on transportation in 2012-13. (The enrollment data used to calculate the per-student transportation expenditures include pre-K students who have been excluded from the BLR's foundation funding analysis.)

	Per-Student Expenditures for Student Transportation: Arkansas's Rank
All States and Washington D.C. (51)	36th highest
SREB States (16)	11th highest
Surrounding States (7, including AR)	4th highest

OTHER NON-MATRIX EXPENDITURES

Districts and charter schools use foundation funding for purposes not included in the matrix and not specifically noted as being essential for educational adequacy. Other non-matrix items include a variety of items that have not been assigned to a specific matrix line item in this analysis. It is important to note that foundation funding is unrestricted funding, and districts are free to use it however best fits their needs. Spending on non-matrix items should not be considered necessarily problematic or incorrect. In some cases, expenditures were placed in this category simply because they did not fit with the specific intent of the matrix.

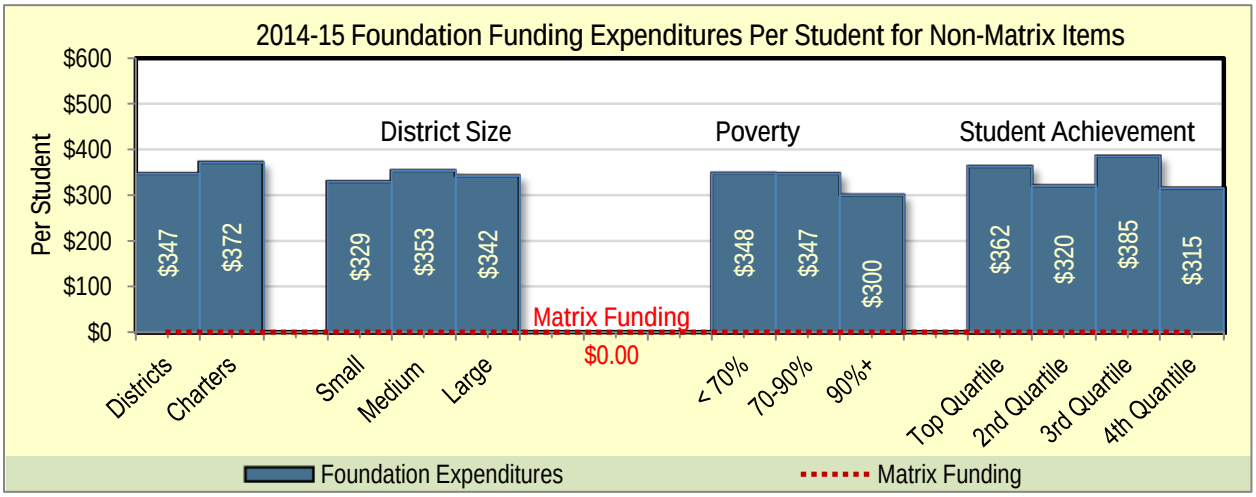
Description	2014-15 Expenditures From Foundation Funds	2014-15 Expenditures Per Student From Foundation Funds
Athletic supplies and transportation	$22,956,601	$48.72
Activity supplies and transportation	$3,044,528	$6.46
Supplies and objects in instruction and instructional support not otherwise classified as instructional materials, technology, etc.	$29,775,023	$63.19
Other classified instructional personnel for programs outside regular school programs, including preschool, summer school, homebound instruction, and selected instructional program coordinators	$11,500,649	$24.41
Classified guidance services	$3,661,378	$7.77
Instructional aides	$62,083,433	$131.75
Classified library support	$4,102,883	$8.71
Supplies and materials for counselors, nurses, and other student support services	$3,739,511	$7.94
Pre-school	$749,968	$1.59
Food service	$604,239	$1.28
Community outreach	$57,545	$0.12
Other financing uses such as bonded indebtedness not accounted for in the debt service fund and indirect costs	$686,649	$1.46
Non-technology related facilities construction and site improvement	$8,998,015	$19.09
Other miscellaneous items	$11,621,255	$24.66
Total other non-matrix items	**$163,581,678**	**$347.14**

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2014-15, districts and charter schools spent about $163.6 million of their foundation funding dollars on items not specifically identified in the matrix. This equates to about $347 per student.

Other Non-Matrix Items: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2013-14	$0	$164,358,810
2014-15	$0	$163,581,678

Districts' spending patterns for non-matrix items differed very little based on district size. High-poverty districts spent less per student on non-matrix items than low-poverty districts. There was no clear pattern of spending among the districts when grouped by student achievement. Charter schools spent more per student for non-matrix items than traditional districts.



INSTRUCTIONAL AIDES

Instructional aides are included in this category of non-matrix items because they are not included in the matrix. In 2003, Picus and Associates recommended against providing funding for instructional aides because "research generally shows that they do not add value, i.e., do not positively impact student academic achievement." However, the consultants noted that research has found instructional aides can have a positive impact on student reading under particular circumstances. While the consultants questioned the value of instructional aides, many districts consider instructional aides a necessary component in the delivery of education.

CURRENT RESEARCH

A major study known as the Tennessee STAR study showed teacher aides have little, if any, positive effect on students' academic achievement (Gerber et al., 2001). The only positive effect was an improvement in reading scores for students who attended a class with a teacher aide for two or three years. This study indicated that the types of duties aides performed had no impact on student achievement.

However, another statewide investigation of large enrollments in the primary grades presented contrary evidence to the STAR study. Lapsley et al. (2002) examined the academic performance of nearly 11,000 randomly selected third-graders in Indiana, as a function of class size, pupil-teacher ratio (PTR), and the presence of an instructional aide. A program in Indiana investigated by Lapsley et al. called Prime Time is largely aimed at reducing PTR by adding instructional aides to

classrooms with large enrollments, rather than hiring teachers to create new smaller classes. Larger class enrollment was related to higher composite and math achievement when an instructional aide was present, relationships that were even stronger for higher socio-economic status (SES) schools. The presence of an instructional aide predicted higher student achievement only in higher SES schools.

In a prior study, Lapsley and Daytner (2001a) surveyed 680 randomly selected Indiana teachers regarding their use of instructional aides. Teachers reported using smaller grouping structures and less whole class instruction as the result of having an aide. Teachers also reported that they spent less time disciplining students and doing routine paperwork, and more time using educational technology, planning lessons, and organizing learning centers as a result of having an instructional aide (Lapsley and Daytner, 2001b).

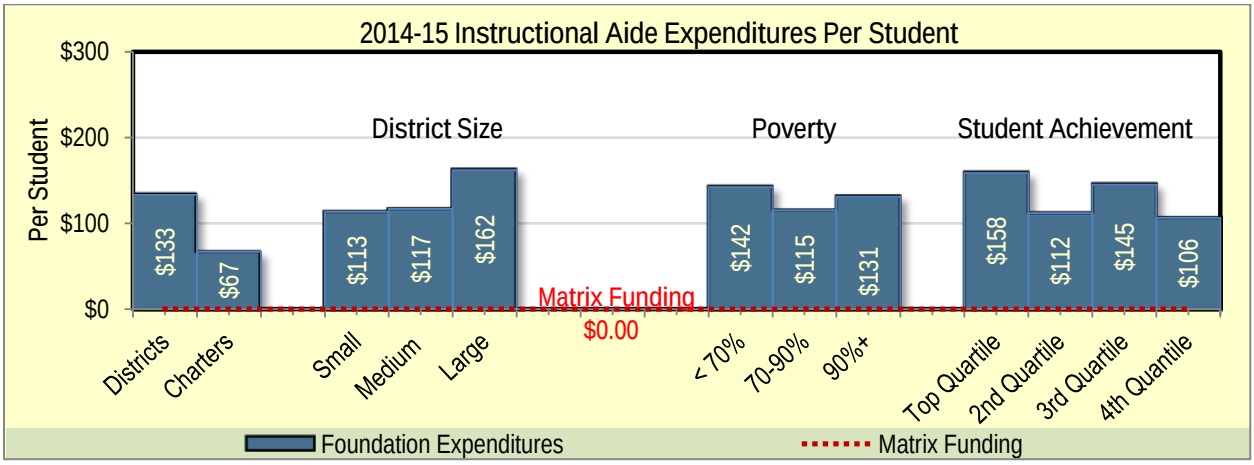
As Odden et al. noted in 2014, there is evidence that instructional aides can have an impact if they are properly selected and trained according to specific educational criteria. The presence of these aides can free-up the teacher to devote more time to teaching in smaller groups and providing individualized attention. If properly trained, aides can provide valuable tutoring for students.

In their Desk Audit, Odden et al. (2014) recommended one supervisory/duty aide for every 225 K-8 students and 200 grade 9-12 students.

DISTRICT AND CHARTER SCHOOL EXPENDITURES FOR INSTRUCTIONAL AIDES

In 2014-15, districts and charter schools spent more than $62 million on instructional aides from foundation funds, or about $132 per student. Of that amount, about 45% was spent on special education instructional aides. Districts may be required to employ some of these aides as a provision of students' IEP.

	District and Charter Foundation Funding Expenditures
2013-14	$59,050,839
2014-15	$62,083,433



TOTAL PER-PUPIL EXPENDITURES

One measure of the adequacy of Arkansas's education funding system is its total per-pupil spending. The following tables show how Arkansas's per-pupil expenditures (including spending from all funding sources) compare with other states.

Arkansas's per-pupil expenditures for 2012-13 rank 6th among those of the 16 SREB states, although they are below the national average. 2012-13 is the most recent data available through NCES. The following tables provide information on the per-pupil expenditures in the 16 SREB states. The data include expenditures from all funding types excluding capital outlay, and interest on school debt.

State	Mean Per-Pupil Expense	Rank
Maryland	$14,086	**1**
Delaware	$13,653	**2**
West Virginia	$11,257	**3**
Virginia	$10,960	**4**
U.S.	**$10,763**	
Louisiana	$10,539	**5**
Arkansas	**$9,538**	**6**
South Carolina	$9,444	**7**
Kentucky	$9,274	**8**

State	Mean Per-Pupil Expense	Rank
Georgia	$9,121	**9**
Alabama	$8,773	**10**
Florida	$8,623	**11**
Tennessee	$8,588	**12**
North Carolina	$8,342	**13**
Texas	$8,261	**14**
Mississippi	$8,117	**15**
Oklahoma	$7,914	**16**

Source: NCES Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2012-13 (Fiscal Year 2013). Table 4

DISTRICT COMPARISONS

The variety of needs for different districts and their individual student characteristics make it unlikely each matrix line item's funding will fit all schools equally well, which is why districts are not required to spend according to the levels established in the matrix. This study reviewed each line of the matrix in an effort to identify how districts are using these resources. The following charts compare the way districts of different sizes, poverty levels, and achievement levels use foundation funding to address the needs of their students.

DISTRICTS AND OPEN-ENROLLMENT CHARTER SCHOOLS

	Matrix	Traditional Districts	Charter Schools
Classroom Teachers	$3,148.96	$2,919.02	$2,458.05
Special Education Teachers	$366.17	$362.80	$132.73
Instructional Facilitators	$315.67	$174.53	$86.55
Library Media Specialists	$104.18	$121.41	$6.30
Counselors and Nurses	$315.72	$261.18	$154.72
Principal	$198.10	$198.37	$173.83
School-level Secretary	$80.10	$119.86	$210.38
Technology	$225.60	$89.98	$266.17
Instructional Materials	$183.10	$105.32	$637.48
Extra Duty Funds	$57.20	$191.30	$41.50
Supervisory Aides	$56.70	$11.92	$6.84
Substitutes	$66.30	$81.59	$63.84
Central Office	$430.20	$356.36	$728.82
Transportation	$321.20	$311.39	$94.95
Operations & Maintenance	$651.80	$826.11	$969.15
Other Non-Matrix Items	$0	$346.59	$371.73
TOTAL	**$6,521**		

DISTRICT SIZE

	Matrix	Small (750 or less)	Medium (751 to 5000)	Large (over 5000)
Classroom Teachers	$3,148.96	$2,836.68	$2,879.67	$2,996.26
Special Education Teachers	$366.17	$271.81	$335.69	$424.75
Instructional Facilitators	$315.67	$51.32	$152.23	$237.84
Library Media Specialists	$104.18	$144.58	$124.23	$111.48
Counselors and Nurses	$315.72	$228.52	$233.90	$308.48
Principal	$198.10	$273.88	$207.19	$166.51
School-level Secretary	$80.10	$114.39	$114.26	$129.26
Technology	$225.60	$68.76	$96.71	$85.77
Instructional Materials	$183.10	$111.67	$115.61	$89.01
Extra Duty Funds	$57.20	$191.68	$225.72	$142.02
Supervisory Aides	$56.70	$8.50	$8.99	$16.97
Substitutes	$66.30	$83.15	$79.81	$83.73
Central Office	$430.20	$520.51	$375.25	$287.47
Transportation	$321.20	$338.60	$320.74	$291.11
Operations & Maintenance	$651.80	$916.86	$838.78	$784.86
Other Non-Matrix Items	$0	$329.05	$353.03	$341.86
TOTAL	**$6,521**			

POVERTY LEVEL

	Matrix	Low (< 70%)	Medium (70%-90%)	High (90% or more)
Classroom Teachers	$3,148.96	$2,982.00	$2,808.72	$2,551.19
Special Education Teachers	$366.17	$373.22	$345.58	$281.73
Instructional Facilitators	$315.67	$172.52	$184.11	$67.33
Library Media Specialists	$104.18	$118.71	$126.78	$124.67
Counselors and Nurses	$315.72	$261.06	$265.02	$190.51
Principal	$198.10	$191.39	$211.64	$218.85
School-level Secretary	$80.10	$115.42	$129.60	$106.94
Technology	$225.60	$96.73	$75.94	$93.86
Instructional Materials	$183.10	$110.66	$95.95	$74.63
Extra Duty Funds	$57.20	$201.58	$172.26	$151.42
Supervisory Aides	$56.70	$11.26	$13.86	$0.24
Substitutes	$66.30	$79.17	$85.20	$108.07
Central Office	$430.20	$328.37	$400.30	$619.60
Transportation	$321.20	$310.33	$314.31	$296.96
Operations & Maintenance	$651.80	$792.68	$879.22	$1,128.77
Other Non-Matrix Items	$0	$347.77	$346.55	$299.88
TOTAL	**$6,521**			

STUDENT ACHIEVEMENT

	Matrix	Top Quartile	2nd Quartile	3rd Quartile	4th Quartile
Classroom Teachers	$3,148.96	$3,033.04	$2,939.09	$2,806.31	$2,802.23
Special Education Teachers	$366.17	$401.96	$363.15	$307.51	$354.81
Instructional Facilitators	$315.67	$189.11	$184.19	$160.51	$146.70
Library Media Specialists	$104.18	$116.64	$126.73	$117.87	$125.86
Counselors and Nurses	$315.72	$271.97	$257.56	$263.04	$244.14
Principal	$198.10	$176.36	$201.97	$209.40	$221.40
School-level Secretary	$80.10	$111.66	$131.32	$119.28	$116.58
Technology	$225.60	$98.65	$92.45	$85.98	$74.16
Instructional Materials	$183.10	108.93	$113.10	$105.36	$84.63
Extra Duty Funds	$57.20	$192.01	$176.09	$215.93	$185.73
Supervisory Aides	$56.70	$12.97	$13.45	$10.90	$8.45
Substitutes	$66.30	$77.88	$77.17	$89.49	$86.70
Central Office	$430.20	$312.37	$338.68	$372.50	$453.09
Transportation	$321.20	$290.04	$299.55	$362.68	$309.78
Operations & Maintenance	$651.80	$752.10	$854.34	$859.58	$879.66
Other Non-Matrix Items	$0	$361.94	$320.04	$384.95	$315.10
TOTAL	**$6,521**				

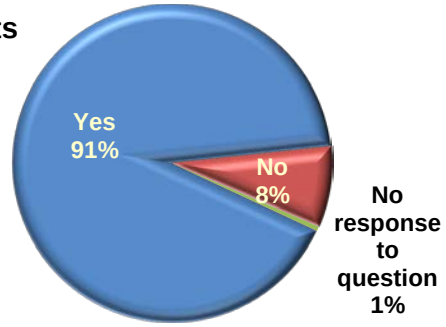
OPINIONS ABOUT THE MATRIX

In an effort to better understand district and charter school administrators' thoughts on the foundation funding matrix, the BLR district survey asked respondents the following questions:

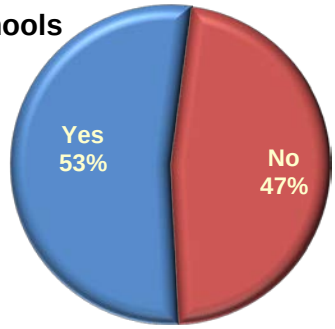
District Survey Question: Are you familiar with the matrix, the formula the General Assembly uses to determine the per-student foundation funding rate? If your answer is no, please skip the following questions.

The vast majority (211) of the 231 districts that completed the survey said they were familiar with the matrix, while just over half (9) of the 17 charter schools that completed the survey indicated that they had some familiarity with the matrix.

Districts



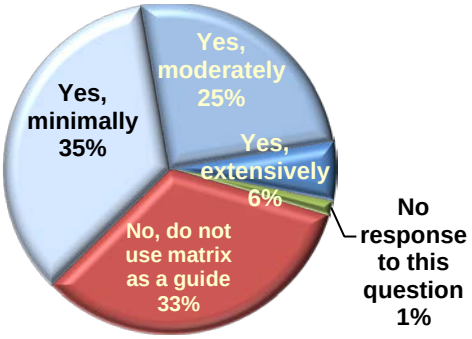
Charter Schools



District Survey Question: Do you use the matrix to guide your district's spending levels?

Only the responses from districts that noted familiarity with the matrix were counted in the results provided below. About 31% of the districts said they used the matrix to guide spending either extensively or moderately. About 33% said they did not used the matrix as a guide at all.

Districts



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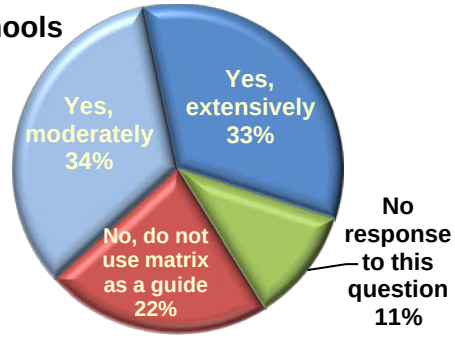
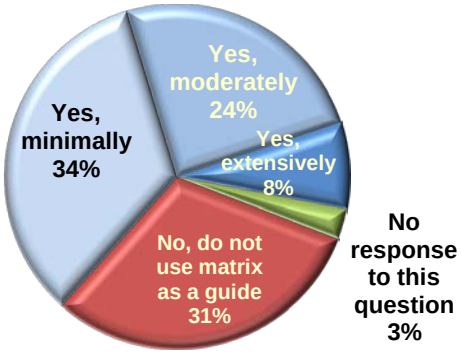


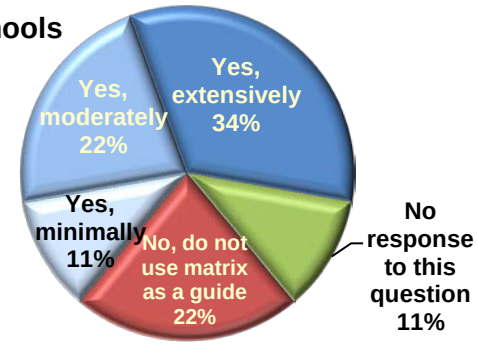
District Survey Question: Do you use the matrix to guide your district's staffing levels?

About 32% of districts said they extensively or moderately use the matrix to guide their staffing levels, while 31% said they do not use the matrix as a guide at all.

Districts

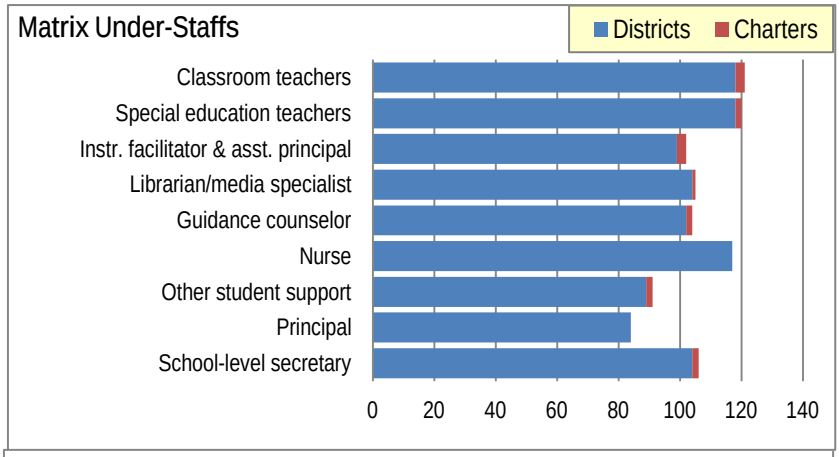


Charter Schools



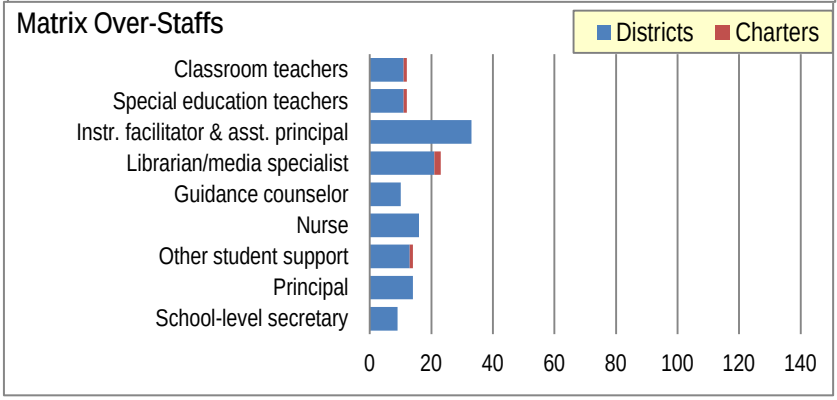
District Survey Question: What area of the matrix staffing levels provide **LESS STAFF** than your district actually needs (matrix doesn't provide enough staff)?

Of the 211 districts and 9 charter schools that indicated they were familiar with the matrix, about 55% said the matrix does not provide enough classroom teachers, special education teachers. About 53% said nurses. Twenty districts of the 211 districts did not select any positions as providing less staff than needed.



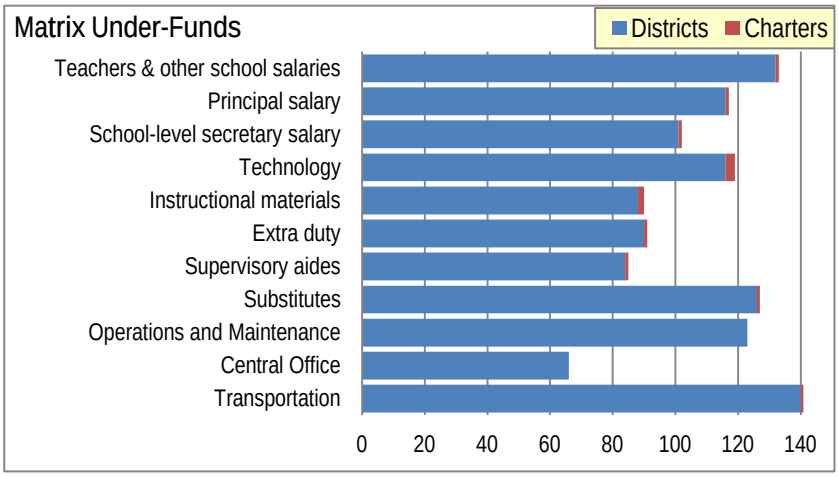
District Survey Question: What area of the matrix staffing levels provide **MORE STAFF** than your district actually needs?

The most common response to this question was instructional facilitator/assistant principal.



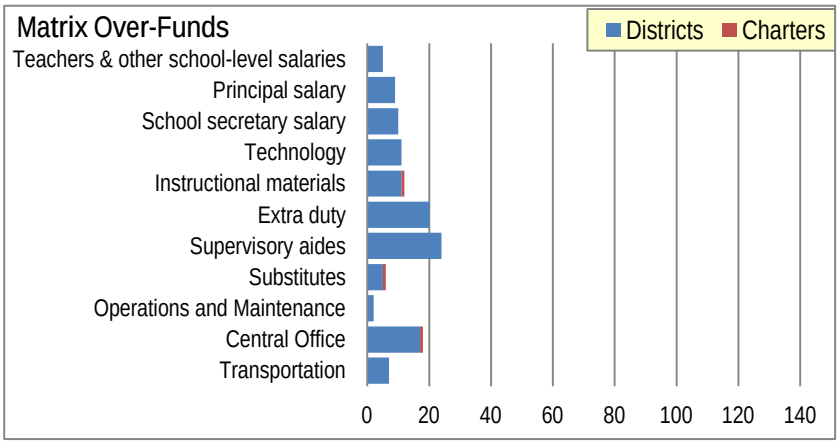
What areas of the matrix **UNDER FUND** your district's needs (matrix doesn't provide enough money)?

Transportation was the line item that districts most commonly thought the matrix under-funds, with 64% of districts and charter schools selecting transportation. Districts also indicated that teacher salaries, substitutes and O&M were other areas that many districts said were under-funded by the matrix.



What areas of the matrix **OVER FUND** your district's needs?

Many fewer districts named items that the matrix overfunded. However, those that did most commonly selected supervisory aides, extra duty and central office.



District Survey Question: Is there anything NOT included in the matrix that you believe is an important part of providing an adequate education? If so, what is it?

The following table tallies districts' and charter schools' responses by grouping similar responses together. Some of the items superintendents listed are, in fact, included in the matrix (e.g., assistant principals). The table provide the most commonly cited response.

Response	#
Instructional aides	14
Dyslexia interventionists, funding and other services	13
School resource officers, school security	13
More transportation funding or a needed change in transportation funding distribution, operating debt to fund transportation,	11
After-school programs, summer school programs and other extended learning opportunities	7
Cost of services for students with disabilities and students with 504 plans, more funding for special education teachers	6
Food and nutrition, food service	5
Facility acquisition/construction; replacement of non-academic facilities; warm, safe and dry facilities	5
Preschool and school readiness programs	5
Paraprofessionals to help with at-risk students, especially catastrophic special education students	4
Emotional/behavioral therapists, speech therapists, physical therapists, occupational therapists.	4
School-based mental health services	4
Academic interventionists, certified support staff for Reading Recovery and Math Recovery	4
Assistant principals (one respondent specified an assistant principal per building)	3
More funding for media specialists, (one respondent specified 1 FTE media specialist per campus)	3
Social workers	3
Building improvements and site improvements; facilities maintenance for non-growing districts	3
Athletic supplies and transportation	2
Competitive teacher salaries	2
Funds for STEM education (particularly computer science) including staff and equipment	2

Appendix C provides a list of other comments superintendents made regarding the matrix.

District Survey Question: If your district could receive a waiver from one state requirement, what would it be?

Of the 231 districts that responded to the district survey, 55 provided no answer to this question or said they were unsure. Many districts provided more than one answer. The responses provided by districts have been categorized in the following table. Some districts provided additional comments about why they would select the waiver they selected. To help illustrate the superintendents' perspectives, some additional comments from the survey responses have been provided in the table. The table provides the most commonly cited responses.

State Requirement	# of Dist.	Example Comment
Class Size	26	Hiring staff when you are barely over the number limit! I need a waiver to be able to use staff I have without hiring a whole person to fill the requirement. I can devise a plan that makes sure that students will get served, but financially, it kills my district.
Seat time requirements	22	Seat time in order to recruit and educate students in a virtual environment. We have a high number of students that are home-schooling for religious (exposure) reasons. They are extremely conservative. I believe we can offer a better curriculum and better prepare them for college and career by

State Requirement	# of Dist.	Example Comment
		overseeing their education while continuing to allow them to work at the fellowship hall of their church. Secondary course requirements and seat time. Current structure is limiting and restrictive. It assumes the same course of study is appropriate for every student.
Teacher certification	22	A waiver to be allowed to have trained, highly-qualified paraprofessionals instead of being required to have licensed and highly-qualified teachers in areas like elementary music, elementary art, elementary PE, etc. We have a teacher shortage that is going to require some out-of-the-box thinking to address.... We need to have more flexibility in hiring college graduates or experts to fill high need areas ALP requirements for a teacher who is already certified in their content area, but perhaps not in a particular grade level. For ex, sped K-4 but not able to teach 5th/6th grade sped students.
Requirement for start/end of school year; hours in the school day	13	The mandatory start date of school. We need the flexibility to start earlier to reduce the amount of regression over the extended summer break and conduct embedded professional development for teachers throughout the school year. We would request a flex day for students in the district who are not testing. We do not have enough staff to administer assessments AND instruct those students who are not testing.
Teacher Fair Dismissal	12	Remove the law for teacher fair dismissal to assist in removal of teachers that are incompetent so it doesn't take 2 years for dismissal. This hurts our students over a two year period. The fair dismissal acts. It is incredibly hard and costly to dismiss people, even hourly people who are doing a bad job.
Limitation on the amount of time teachers can serve as supervisory aides or requirement that teachers be provided a duty-free lunch	9	
P.E., Art and Music requirements (teacher certification, required courses, required minutes)	5	Art/Music requirement for every 7th/8th grade student - their interests are developing and those interests may be met through other elective courses (e.g. CTE classes, competitive speaking, athletics, etc.
Home schooling/school choice	5	
Requirement that 38 units be taught annually	4	If we could waiver one requirement it would be to reduce the class offerings in high school such as Chemistry to alternate every other year. Our students would still get to take it but we could offer other classes on off years.
Advanced Placement (AP) Requirements	4	Change the requirement for high schools from offering an AP course in every core area to offering an AP course OR concurrent credit course in every core area.
Career and technical education requirements	4	We need to revisit career education. We have a lot of talk about revising career education, but most of the reforms are being done by districts outside of the career ed umbrella.
Requirement for library media specialist certification or requirements regarding library media specialist time	4	
Transportation requirement or funding distribution method	3	
Guidance counselor to student	3	

State Requirement	# of Dist.	Example Comment
ratio or limit on guidance counselor's time		
Academic Improvement Plans/Remediation requirements	2	
ALE/ALE Program description requirement	2	
District consolidation requirement if student count drops below 350	2	
Graduation requirements	2	Schools have many requirements for students to graduate including the 4 core areas, CTE choices, Fine Arts, PE, Speech, and so forth. Everyone says they recognize the need for career pathways for the students who, most likely, will not go to college; however, there are so many subject requirements that there is not enough time in the school day to allow for technical training. Schools need more flexibility.
Gifted and Talented	2	
State reporting requirements	2	
Facilities requirements	2	
Requirement that ADE school improvement specialists be used in Priority schools	2	

Principal Survey Question: What state or federal laws or ADE rules should be changed or eliminated and why?

In discussing this question, many principals highlighted general complaints they have, not necessarily statutes or rules they wish were changed. The following table lists the most frequently cited responses. The responses sum to more than 73 because most principals listed more than one issue.

Issue	# of Principals
Testing issues (e.g., too much testing, testing should align with curriculum; state needs to select a test and stick with it)	11
Too many requirements or **unfunded mandates**	10
Dyslexia assessment and intervention (e.g., expensive requirement with no additional funding, lack adequate staff to handle assessments; too much room for interpretation)	8
Accountability status methodology (e.g., school designations are unfairly calculated or do not accurately assess school's quality)	9
Schedule flexibility(e.g.,need more flexibility in daily scheduling, need to move to year round schedule, etc.)	7
Special education (e.g., too much paperwork, too many requirements, disciplinary policies are ineffective, need more special education student services)	7
P.E., art and music and other **elective courses** (e.g., need more flexibility in scheduling; non-core requirements should be eliminated; need more time for art, P.E., music and library)	6
Limits on **teacher duty** (e.g., need more flexibility in scheduling duty)	5
Class size (e.g., need flexibility, class size restrictions limit the number of students who can take certain courses)	5
Seat time (there may be overlap between concerns about seat time and the need for flexibility in scheduling)	4
Teacher certification (e.g., allow individuals with J-1 VISAs to teach, need more pathways toward teacher certification; teachers entering profession through non-traditional pathways do not have teaching experience)	4

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APPENDIX A: ACRONYMS

ACE—Arkansas Department of Career Education
ACTAAP—Arkansas Comprehensive Testing, Assessment and Accountability Program
ADE—Arkansas Department of Education
ADM—Average Daily Membership
ALE—Alternative Learning Environment
ALP—Additional Licensure Plan
AP—Advanced Placement
APSCN—Arkansas Public School Computer Network
BLR—Bureau of Legislative Research
DIS—Department of Information Systems
DL—Distance Learning or Digital Learning
EAST—Environmental and Spatial Technology program
ELL—English Language Learner
ESHS—Essential School Health Services
FCC—Federal Communications Commission
FRPL—Free or Reduced Price Lunch
FTE—Full-Time Employee/Full-Time Equivalent
GED—General Educational Development
IDEA—Individuals with Disabilities Education Act
IEP—Individualized Education Program
IFB—Invitation For Bid
LEA—Local Educational Agency
LPN—Licensed Practical Nurse
NASN—National Association of School Nurses
NCES—National Center for Education Statistics
NSL—National School Lunch
PAM—Physical education, art and music
PARCC—Partnership for Assessment of Readiness for College and Careers
PD—Professional Development
PTR—Pupil-teacher ratio
O&M/M&O—Operations and Maintenance
RN—Registered Nurse
SES—Socioeconomic status
SREB—Southern Regional Education Board
URT—Uniform Rate of Tax
USAC—Universal Service Administrative Company

APPENDIX B: EXPLANATION OF MATRIX LINE ITEMS

KINDERGARTEN TEACHERS - Generally includes educational activities for students of age 5 or 6.

CLASSROOM TEACHERS (OTHER THAN KINDERGARTEN AND SPECIAL EDUCATION) - Elementary, middle school and high school classroom activities including regular programs, workforce education programs, compensatory education programs, and other classroom instruction such as gifted and talented, art, choir, band or music. This line item does not include adult education and does not include athletics or student activities.

SPECIAL EDUCATION TEACHERS - Instruction services for students with disabilities or special needs.

INSTRUCTIONAL FACILITATORS - Includes Assistant Principals, Curriculum Supervisors, Instructional Facilitators.

LIBRARY MEDIA SPECIALIST OR MEDIA SUPPORT - Activities concerned with the operation and effective use of circulating books, reference materials, audio visual materials and other instructional media.

COUNSELORS -- Includes Guidance Counselors, School Nurse, Psychologists, Social workers.

PRINCIPAL - The principal is responsible for directing school activities and operations.

SCHOOL SECRETARY - Secretaries working with principal's office.

TECHNOLOGY - Includes instructional and administrative technology.

INSTRUCTIONAL MATERIALS - General and instructional supplies directly related to the instruction and instructional support functions.

EXTRA DUTY - Generally includes non-classroom duties of certified teachers related to athletics or student activities.

SUPERVISORY AIDES - Non-instructional supervision of students in the lunchroom, playground, etc.

SUBSTITUTES - Persons filling in for certified classroom teachers on a temporary as-need basis.

OPERATIONS AND MAINTENANCE - Activities concerned with maintaining the usefulness, comfort and safety or existing buildings, facilities and grounds . Does not include facilities acquisition and construction services relating to new buildings and facilities. Typical positions include plant supervisor, custodians, electricians, carpenter, crossing guards, etc.

CENTRAL OFFICE - Includes district level support such as superintendent, fiscal operations and purchasing.

TRANSPORTATION - activities relating to student transportation. Expenditures include bus maintenance, bus purchases, bus drivers, fuel and similar costs. Transportation for athletics and extracurricular activities are not included.

APPENDIX C: SURVEY COMMENTS ON THE MATRIX

This Appendix provides additional comments superintendents offered when responding to the following open-ended question on the BLR's district survey:

District Survey Question: Is there anything NOT included in the matrix that you believe is an important part of providing an adequate education? If so, what is it?

- "The matrix focuses only on academic education and development. School districts across the state do so much more in the total development of students that isn't limited to the set minutes of instructional time."
- "Special education funding does not come close to covering the cost associated with providing the needed services!"
- "Funds need to be based on standards rather than a perfect ratio."
- "The Matrix only works for schools with a perfect ratio."
- "In today's time, districts need a Dean of Students position. Principals cannot do all of the curriuclum and TESS work, while also dealing with day to day discipline."
- "The general categories covered everything from my viewpoint. The matrix is not an expenditure model. The state consultants showed these amount to explain how they arrived at the adequacy amount per student. Every school district has different needs and should be allowed to budget appropriately for their situation. Every budgeted item does not fit in the matrix model and should not have to do so."
- "Every school district is different and has their own needs. School districts need more money today to improve instruction. Over the years ADE has introduced programs, but we have not addressed how to make a teacher a better teacher. Data will support, to improve learning, we must improve instruction."
- "Adequate at this time."
- "More funding for teacher salaries where districts do not have perfect student ratios."
- "I believe that when it comes to Special Education, the Matrix is not applicable…We have 5 students that are non-verbal, 2 of which are not potty-trained. When it comes to aides, transportation aides, OT, PT, Speech, etc. things get expensive. The best sample is a highly autistic elem student …[who] needs all of the ancillary services above. [This student's] education costs my district between $45-50,000 annually. The aggravating part is that when a district surpasses 12% of the population identified...it becomes punitive. What should happen is that someone from the state department should do a SPED audit and when it is verified that the district legitimately has a high number of high needs student additional assistance should be given. It is very expensive to educate special needs children and catastrophic reimbursement is not near enough."
- "It is my belief the matrix is a funding matrix. We are not going to be able to account for every expense the district has in the matrix. All schools are different in the way they spend their money to provide an adequate education for students of their district."
- "There will be new requirements, such as those related to the new Dyslexia law, that will require new expenditures."
- "More funding for staff, especially for starting salary and more adequate staffing."
- "The matrix just needs to have a constant COLA each funding year to keep up with the rising costs."
- "Full-time nurses, more office staff, more transportation money, more administrative staff."
- "Several of the latest unfunded mandates. A couple examples are Dyslexia Interventionist and Reading Recovery Programs that benefit Dyslexia students are not included in the matrix. There was no additional funding appropriated with this recent legislation. We will always continue to serve the best needs of our students. However, it is becoming increasingly difficult with Unfunded Mandates becoming common again."
- "Yes, There should be more opportunities for students to learn HVAC, electrical trades, plumbing....etc."

- “Transportation funds should consider linear route miles instead of equal division based on student population.”
- “One severe [special education] student can easily consume five or ten times the Foundation Funding amount per child. Although districts can apply for catastrophic funds in these cases, they're not guaranteed and adequacy funding dollars must be spent to provide the required interventions.”
- “Additional staff members are now necessary to provide dyslexia services. Additionally, the partial funding distribution for various positions is misleading. For example, I have not been able to employ a 0.825 library media specialist. I use the matrix minimally as a guide for staffing purposes. My understanding is the matrix is a revenue distribution model, NOT an expenditure model.”
- “I think that having to stick to certain standards and the matrix hurts districts my size. Example, based on numbers I have to hire an additional counselor because I am over the number by 50 students. [The] counselor I have can handle the number, but I am REQUIRED to hire a whole/part time counselor to meet those needs. It is wasting money, I think!”
- “Need to remove the 'portion' of a person and round up”
- “Food service is under funded... We need more funding to provide healthier food options of quality. Also Professional Development funding is not adequate to provide quality staff training.”
- “One size doesn't fit all. Rural, medium sized (800-1,200), rural schools have particular challenges that should be considered for adequacy. For example, rural schools need more funding for transportation than urban districts. The geography of the district should be considered as well for transportation funding. The K-1 class size should be funded to a lower student : teacher ratio. Research indicates no more than 12:1 makes a significant difference in student performance. Principal engagement in the TESS process (if done with fidelity) takes an incredible amount of time and attention; so funding should be included to lower the principal/student ratio (and thus principal/teacher) ratios and/or specifically to add assistant principals.”
- “The research shows the more connected to school a student is, the higher a student achieves. In many cases, those connections occur through extracurricular activities and/or afterschool programs. Extended year programs are, also, critical to schools with high poverty populations.”
- “Our district maximizes the use of federal and state categorical funding to provide an adequate education for our students. Without these federal and categorical funds, the matrix would under fund our needs in several more areas.”
- “Transportation needs should be analyzed and funding determined by individual district needs.”
- “Matrix does not fund all positions to the level that is required to meet standards (Library Media Specialists)”
- “Positions need to be funded to line up with the required accreditation standards. The matrix budgets .85 fte for a library media specialist- the standards call for 1 for every 300 students.”
- “We are required to pay the 'social security' savings to the state and this is not included.”
- “The transportation amount doesn't take in to account the number of square miles (147) the district must travel and the number of students per bus.”
- “Special education is grossly under-funded by our state and the federal government. Our Legislature and Congress should be ashamed at how inadequately schools are funded to support the many, many students we have with special needs. Additionally, the matrix needs a line item for Instructional Aides and the accreditation standards call for 1 library media specialist for every 300 students; yet, the matrix only pays for .85 FTE for 500 students. This, too, is grossly underfunded!”
- “The media specialist at 0.825 is not feasible, nor does it match the requirement in the Arkansas Standards for Accreditation. In addition, the matrix does not allow for paraprofessionals, which are absolutely necessary for reasons too numerous to list. I did not check any overfunded areas because the areas that we have below the matrix amount (technology, supplies, salaries) are heavily supported by other funds, and if we didn't have other sources, and we relied totally on the matrix amount, we would be well over the allotted amount. We couldn't afford to meet all the standards and provide a quality education if we didn't have funds in addition to the matrix. The 'ideal school' of 500 does not work well with a school district of 3,300.”