Research Report

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

School-Level Resources

June 18, 2018

Prepared for the

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

2017-18 Adequacy Study

BUREAU OF LEGISLATIVE RESEARCH
One Capitol Mall, 5TH Floor Little Rock, Ark., 72201 (501) 682-1937

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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 the third and final part of 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 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 the state's accreditation standards and adequately educate Arkansas students.

This report is the third in a series of three resource allocation reports that compare the funding and staffing levels of the foundation funding matrix with the actual expenditures and staffing levels of school districts and open enrollment charter schools. This report examines expenditures for school-level resources. District-level resources were addressed in this March 2018 report: www.arkleg.state.ar.us/education/K12/AdequacyReports/2018/2018-03-26/ResourceAllocation-DistrictLevel-Resources18a.pdf. School-level staffing was addressed in this April 2018 report: http://www.arkleg.state.ar.us/education/K12/AdequacyReports/2018/2018-04-24/ResourceAllocation-SchoolLevelStaffing_BLR_18b.pdf.

DATA AND METHODOLOGY

FOUNDATION FUNDING EXPENDITURES

A major objective of the biennial Adequacy Study is to determine how school districts and charter schools have spent the foundation funding they have received. This report evaluates how closely today's schools' spending matches the matrix assumptions.

To calculate district and charter school expenditures, the Bureau of Legislative Research (BLR) extracted data from a data warehouse maintained by the Arkansas Public School Computer Network (APSCN) unit 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, from time to time, 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. School districts have a variety of revenue they can use to pay for matrix items. In the district accounting system, foundation funding is placed in and spent from two account-like funds: the Salary Matrix Fund and the Operating Matrix Fund. However, other district revenues, such as excess property tax revenue, can be placed in these accounts and comingled with current year foundation funding.

To estimate the expenditures made using foundation funding, the BLR divided the foundation funding districts and charter schools received in 2016-17 ($6,646 per student) by the total expenditures made from the Salary Matrix and Operating Matrix accounts to reach a percentage. That percentage, which

was unique to each district, was then applied to districts' expenditures made from those two accounts to determine the portion of expenditures made using foundation funding.

For each matrix line, this report provides average staffing levels and expenditures for the 235 districts and 24 open-enrollment charter schools operating in 2016-17. This report also provides the districts' expenditures per student when grouped by district size (based on prior year average daily membership, or ADM) and by the percentage of students who are eligible for free or reduced price lunch (FRPL). This type of analysis allows for a comparison of spending patterns 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 are from 2015-16, which was the data year used as the basis for distributing state funding in 2016-17.

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 "Ready" or "Exceeding" on the ACT Aspire assessment in 2016-17. Each district's percentage of "Ready" or "Exceeding" on English language arts (ELA) assessments and on math assessments were averaged for one single proficiency percentage. The proficiency percentages were calculated using data 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. Only traditional school districts are included in the analysis using this segmentation (by ADM, FRPL and student achievement). Open-enrollment charter schools are included only in the charter school grouping.

	# of Districts	District Avg. ADM	Total ADM	District Avg. FRPL %	District Avg. Achievement
District Size					
Small (750 or Less)	79	520	41,107	71.5%	44.9%
Medium (751-5,000)	140	1,738	243,343	64.4%	48.1%
Large (5,001+)	16	10,967	175,468	56.9%	52.2%
Poverty					
Low Poverty (<70%)	120	2,223	266,748	56.2%	53.2%
Medium Poverty (70%-<90%)	105	1,772	186,013	75.3%	42.9%
High Poverty (90%+)	10	716	7,156	93.3%	23.6%
Student Achievement					
Top Quartile	59	2,712	159,995	54.4%	61.1%
2nd Quartile	58	1,909	110,715	64.0%	51.0%
3rd Quartile	59	1,288	76,004	69.0%	44.5%
Bottom Quartile	59	1,919	113,204	77.8%	32.7%

Source: Arkansas Department of Education, State Aid Notice; Child Nutrition Unit, Audited Free and Reduced Price Lunch, Office of Innovation for Education

EXPENDITURES FROM OTHER FUNDING SOURCES

This report also provides information on district expenditures for matrix items (e.g., substitutes) using funding other than foundation funds. For each matrix item, this report includes a bar chart showing the per-student amount of funding districts collectively spent on each matrix item from foundation funding and how much they spent using all other funding sources. For each matrix item, this report also provides a pie chart showing the percentage of districts' total expenditures that were 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 $6,646 per student for the 2016-17 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.

STATUTE AND STANDARDS

The foundation funding matrix is largely based on state Accreditation Standards (Rules Governing Standards for Accreditation of Arkansas Public Schools and School Districts), which set minimum staffing levels or required levels of resources schools must provide. One way of measuring whether the foundation level is adequate is by determining whether districts are able to meet established statutory and regulatory standards. If many districts are out of compliance on a particular standard, there may be an issue with the sufficiency of funding. However, if nearly all districts are in compliance with the standards, the funding may be sufficient for districts to meet the requirements. Therefore, each section of this report describes the relevant requirements and provides the number of schools or districts cited for non-compliance.

SUPERINTENDENT, PRINCIPAL AND TEACHER SURVEYS

As part of the 2018 Adequacy Study, the BLR conducted online surveys of superintendents and principals in Arkansas. The BLR also visited a randomly selected, representative sample of 73 schools and interviewed their principals. Teachers in the 73 randomly selected schools were also invited to complete an online survey. The online surveys allowed the BLR to collect specific, quantitative data from districts, while the principal interviews asked more open-ended qualitative questions. This report provides the questions and responses from all four 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 superintendent and principal surveys were conducted using online questionnaires. The superintendent survey was distributed beginning October 6, 2017, and the last district responded

January 24, 2018. The BLR received responses from all 235 school districts and 24 open enrollment charter schools. The principal survey began October 10, 2017, and the last principal response was received December 15, 2017. A total of 1,050 principal surveys were distributed and 546 principals completed the survey, providing a 52% response rate.

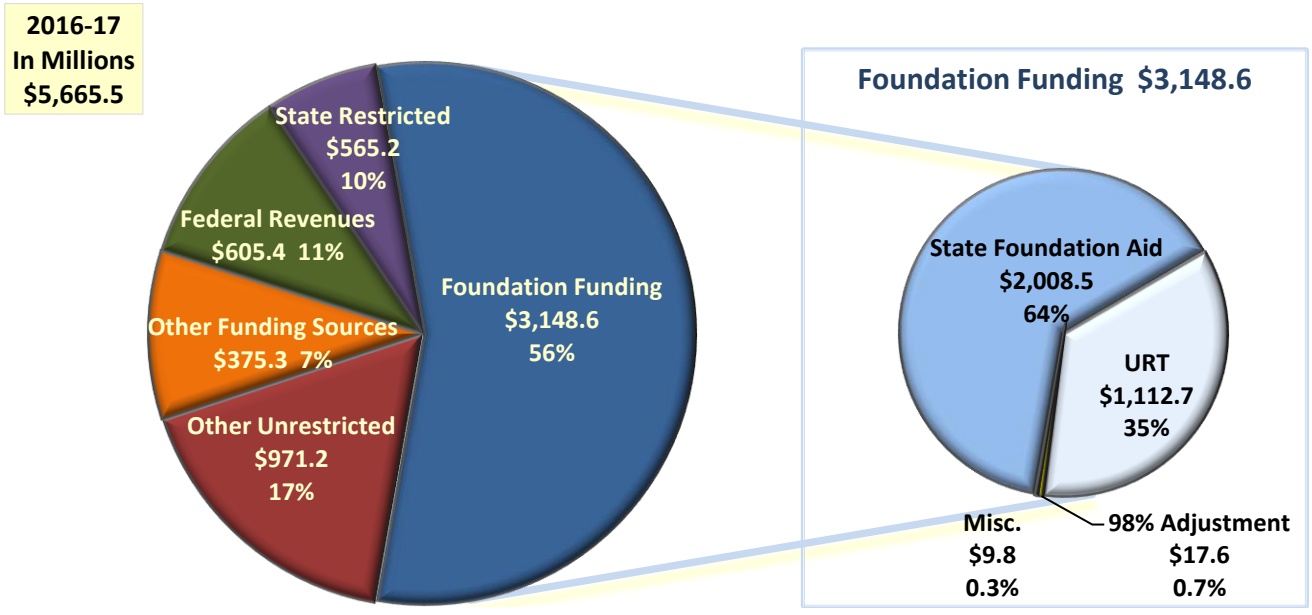
The school visits and principal interviews began October 23, 2017, with the final visits on January 11, 2018. The BLR visited a total of 73 schools and interviewed the principals of those schools. Some schools invited other staff members to the interviews, and some included their superintendents in the conversation.

For the BLR's online teacher survey, only certified teachers in the 73 randomly selected schools were invited to respond. Each principal was asked to provide the name of a teacher or staff member who would distribute the teacher survey instructions to his/her colleagues. Generally only certified teachers assigned to teach a class were invited to complete 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 2,875 surveys were distributed, and 1,199 teachers responded by February 15, 2018, for a response rate of nearly 42%.

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.

EDUCATION FUNDING IN ARKANSAS

Arkansas schools receive many different types of funding. In 2016-17, school districts and open-enrollment charter schools received about $5.7 billion in total revenue. Foundation funding makes up 56% of that amount. The following chart illustrates the relationship of foundation funding revenue to districts' and charter schools' total revenue. The chart demonstrates that a significant amount of additional revenue is available to districts to meet their needs.



- **Foundation Funding** primarily consists 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 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) 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 the revenue generated 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 $2,646 per student in 2016-17, the district would have received an additional $4,000 in state foundation funding aid, for a total of $6,646. The two smaller components of foundation funding are the 98% URT Actual Collection Adjustment and other types of funding collectively considered "miscellaneous funds". The **98% URT Adjustment funding** is state 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 2016-17, 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 2016-17 collected more than $6,646 per student in URT alone and therefore received no state foundation funding aid.[1] 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	$1,112,682,647	36.3%	$0	0%
State Foundation Funding Aid	$1,924,159,757	62.8%	$84,318,554	100%
98% Adjustment	$17,583,692	0.6%	$0	0%
Miscellaneous	$9,809,489	0.3%	$0	0%
Total	**$3,064,235,755**		**$84,318,554**	

[1] One of these districts was Quitman. While Quitman did not receive any State Foundation Aid, the district did qualify for $76,495 in 98% URT Adjustment funding in 2016-17.

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 $6,646 for the 2016-17 school year. If a school district's ADM was 530, its funding would be determined by multiplying $6,646 by 530 for a total of $3,522,380.

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. Legislators involved in the biennial 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 ($6,646 for 2016-17), 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 (full-time equivalents, or FTEs) needed for the prototypical school of 500 students, and 2.) the cost of all needed resources. The first section describes the 35.69 school-level personnel needed for the prototypical school.

	Matrix Item	2016 FTE
Classroom Teachers	Kindergarten	2.00
	Grades 1-3	5.00
	Grades 4-12	13.80
	Non-Core	4.14
	Subtotal	24.94
Pupil Support Staff	Special Education	2.90
	Instructional Facilitators	2.50
	Library Media Specialist	0.85
	Counselors & Nurses	2.50
	Subtotal	8.75
Administration	Principal	1.00
	Secretary	1.00
	Total	**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:[2]

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. For example, 24.94 classroom teachers at $64,196 each costs a total of $1,601,048. For a school of 500 students, that calculates to $3,202.10 per student.
2. **School-level resources** including instructional materials and technology-related expenses.

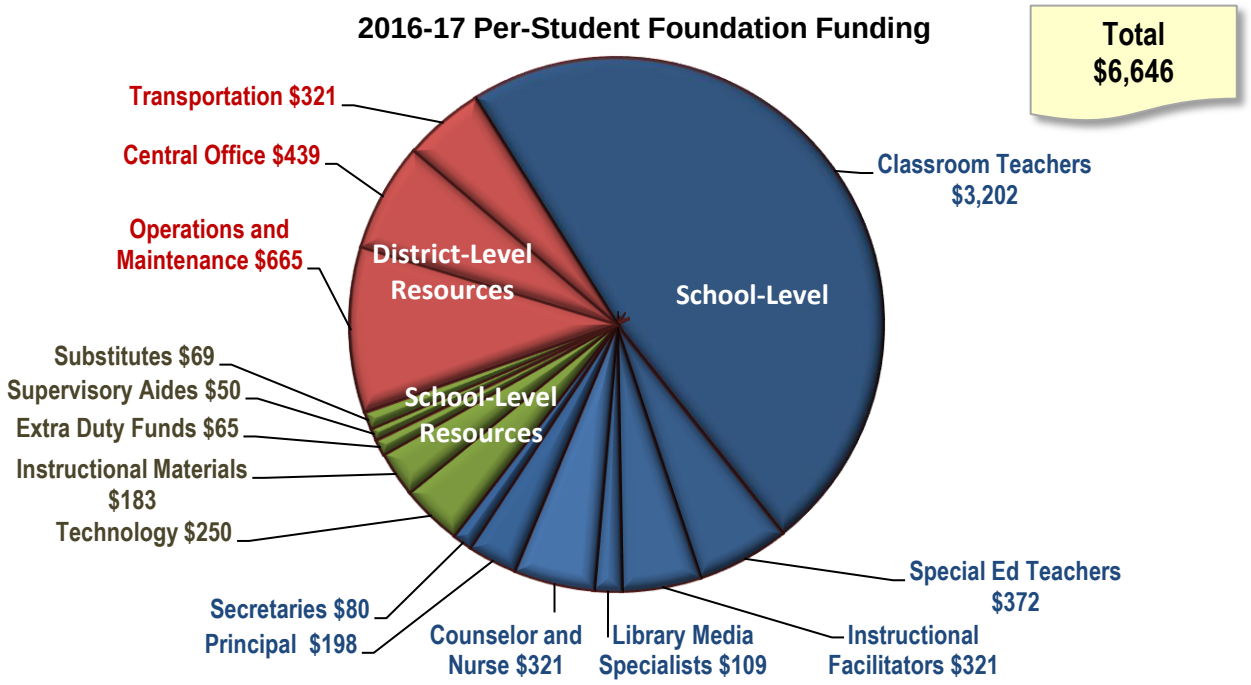
School-Level Salaries	Salary & Benefits	Per-Student Funding Amt.
Classroom Teachers	$64,196	$3,202.10
Pupil Support Staff	$64,196	$1,123.43
Principal	$99,012	$198.10
Secretary	$40,031	80.10

School-Level Resources	Per-Student Funding Amt.
Technology	$250.00
Instructional Materials	$183.10
Extra Duty Funds	$64.90
Supervisory Aides	$50.00
Substitutes	$69.00

[2] The individual per-student funding amounts total $6,645.63, which was rounded up to $6,646 per student for the total foundation funding rate.

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

District-Level Resources	Per-Student Funding Amt.
Operations & Maintenance	$664.90
Central Office	$438.80
Transportation	$321.20



LEGISLATIVE HISTORY

The General Assembly's efforts to define and fund an adequate education was driven by a lawsuit filed in August 1992 by the Lake View School District in Phillips County. The lawsuit claimed the disparity between public school funding for wealthy districts and for low-income districts was unconstitutional.

In 2002, the Arkansas Supreme Court declared the state's public school funding system inequitable and inadequate and thus unconstitutional. The court ordered the state to define educational adequacy, examine the entire spectrum of the state's public education system, and monitor how state education funding is spent.

To comply with the court's ruling, the General Assembly created the Joint Committee on Educational Adequacy during the 2003 regular legislative session, and charged it with conducting an adequacy study. The committee hired school funding experts Lawrence O. Picus and Associates, who spent four months reviewing Arkansas's school finance and adequacy issues and presented their final recommendations September 1, 2003,[3] which included a foundation funding formula based on the staffing and resources necessary to operate a prototypical school of 500 students.

Based on the recommendations and other information, the General Assembly enacted 73 education bills into law during the Second Extraordinary Session of 2003. The legislation included new funding

[3] Odden, A., Picus, L. O., Fermanich (2003). *An Evidence-based Approach to School Finance Adequacy in Arkansas. Report* prepared for the Arkansas Joint Committee on Education Adequacy, http://www.arkleg.state.ar.us/education/K12/AdequacyReportYears/2003%20Final%20Arkansas%20Report%2009_01_2003.pdf

for school operations, based on a formula known as the matrix. The Supreme Court released the state from court supervision in 2004, praising much of the General Assembly's work while noting that deficiencies still existed.

A year later, after the 2005 legislative session, the Supreme Court reopened the Lake View case at the request of 50 school districts. The districts, led by the Rogers School District, argued that despite inflation and new state mandates placed on schools, the General Assembly failed to increase the foundation funding rate for 2005-06. They claimed the money schools received was not enough to provide an adequate education.

In December 2005, the Arkansas Supreme Court again declared the public school funding to be unconstitutionally inequitable and inadequate. Among other findings, the court said the state had failed to comply with two laws: its doomsday provision requiring that education needs be funded first and Act 57 of the Second Extraordinary Session of 2003, which required the state to study the cost of providing an adequate education.

In 2006, the Adequacy Study Oversight Subcommittee began another interim study on education and rehired Lawrence O. Picus and Associates to reassess the foundation funding levels. Based on the consultants' recommendations and other information, the Subcommittee refined the funding levels established in the matrix, and in a special session in April 2006, the General Assembly increased the foundation funding rate.[4]

A year later in May 2007, the Supreme Court, in an historic decision signed by all seven of the participating justices, declared the Arkansas public school funding system constitutional.[5]

Since that time, the House and Senate Education Committees have undertaken biennial studies of the state's entire education system and adjusted the matrix and foundation funding levels as needed.

SCHOOL-LEVEL 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 and allowed new ways of presenting educational information and concepts.

Existing 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). However, newly approved accreditation standards eliminate this requirement.

Beyond this standard, districts are not required to maintain a particular level of technology equipment or devices. However, the Arkansas Division of Public School Academic Facilities and Transportation maintains the Arkansas School Facilities Manual, which includes a section on Technology Systems. The Manual generally covers standards for the technology infrastructure of school buildings, including wiring, computer network systems and sound reinforcement systems.

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[4] Odden, A., Picus, L. O., & Goetz, M. (2006). Recalibrating *the Arkansas School Funding Structure.* Report prepared for Arkansas Joint Committee on Education, http://www.arkleg.state.ar.us/education/K12/AdequacyReports/2006/AR%20Recalibration%20Report%20August%2030,%202006.pdf

[5] *Lake View Sch. Dist. No. 25 of Phillips County v. Huckabee*, 370 Ark. 139, __ S.W.3d __ (2007).

BACKGROUND: TECHNOLOGY IN THE MATRIX

The technology line item of the matrix was originally set at $250 per student based on the 2003 recommendations of the Legislature's education consultants 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.

	Consultants' 2006 Recommended Technology Resources		**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
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		$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 a 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.

Hired again in 2014, Picus Odden and Associates noted that technology has become a necessary instructional tool that should be embedded in student programs and school management. They recommended funding technology at $250 per student. The Education Committees agreed with that finding and recommended increasing the funding level by 5.4% for FY16 and 5.1% for FY17. After the 2016 Adequacy Study, the Education Committees decided against additional increases for the technology component of the matrix for FY18 and FY19. Act 743 of 2017 increased the per-student foundation funding rate to include the following amounts for technology:

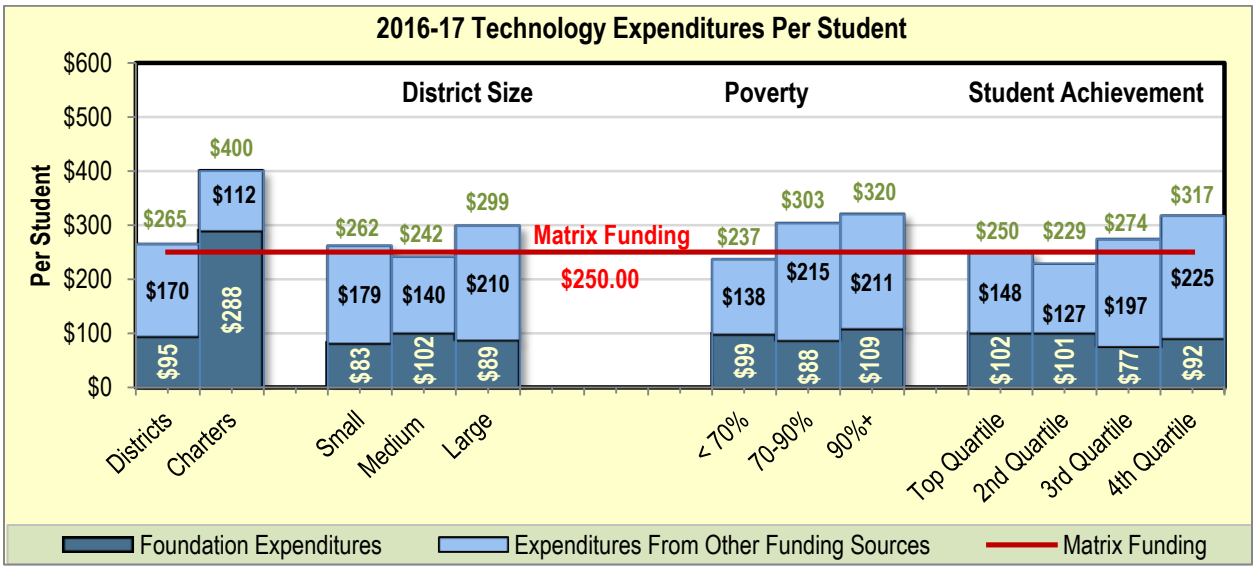
	2018	2019
Per-Student Rate	$250	$250
% Change	0%	0%

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2016-17, districts and charter schools collectively spent $47.4 million in foundation funding on technology. This equates to approximately $100 per student, compared with $250 provided in the matrix. The following table shows the total foundation funding expenditures for technology for 2015-16 and 2016-17.

Technology: Foundation Funding and Expenditures		
	Funding	Expenditures
2015-16	$112,331,227	$49,607,357
2016-17	$118,157,350	$47,359,787

The following chart compares the per-student spending of traditional school districts and charter schools for technology. It also compares districts' per-student spending based on district size, poverty level and student achievement.



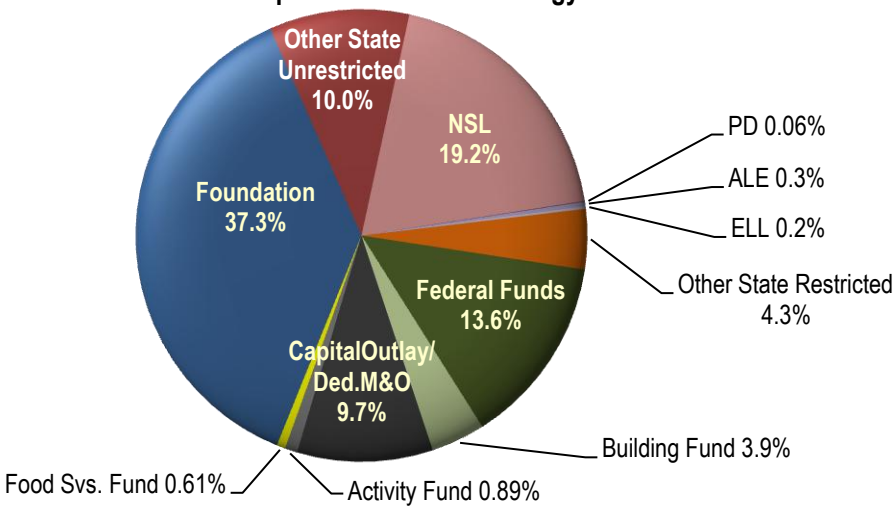
Traditional districts spent considerably less foundation funding per student on technology than charter schools. Just three traditional districts spent more foundation funding per student than the matrix provides for technology. Even when including expenditures made using all funding types, 138 districts—about 59%—spent less than the matrix level of $250 per student. Charter schools' expenditures, on the other hand, exceeded the foundation funding level. The higher per-student expenditures for charter schools appears to result from issues unique to the individual schools. For example, some of the highest per-student technology expenditures were made by an online charter school and a charter school that opened in the 2016-17 school year, which was likely making significant one-time start-up expenditures.

Mid-sized districts spent a little more foundation funding on technology than districts in the other groups. However, when considering technology expenditures from all funding sources, large districts spent more per student than smaller districts. When grouped by poverty levels, high-poverty districts slightly out-spent the other two groups in technology spending per student.

In addition to foundation funding, districts and charter schools receive a variety of other sources of funding they can use for technology expenditures. Foundation funding made up about 37% of the money districts used to make technology purchases in 2016-17. Major sources of funding districts used for technology include state NSL funding (19%), federal funds (14%) and money from their capital outlay/dedicated M&O funds (10%).

Total $127,083,845

2016-17 Expenditures for Technology

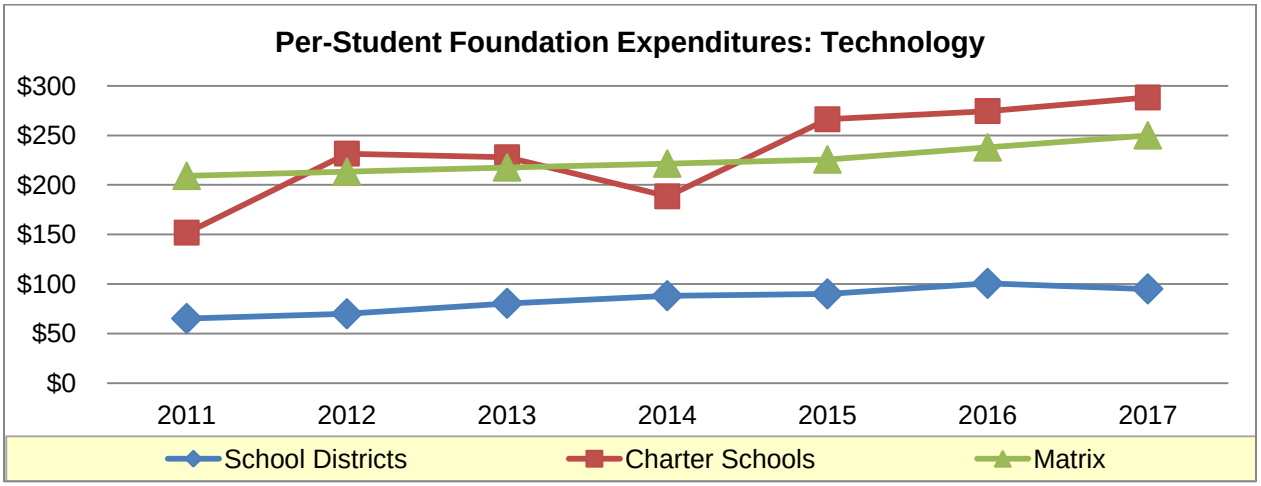


In addition to funding districts and charter schools receive directly for technology-related expenses, the state provides **technology grants**. Though these funds do not provide technology funding directly to school districts, they offer resources that may alleviate the need for districts to purchase their own technology equipment or services. The technology grants are appropriated to the Department of Education through the Public School Fund. ADE then distributes the money to the designated organizations. In 2017 the technology grants provided more than $3.27 million in 2017 for various programs.

The majority of the money (just over $3 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. More than 230 Arkansas schools have EAST programs, including 12 new schools in 2016-17, according to the EAST Initiative's annual report.[6] About $1 million of the funding the EAST Initiative receives each year is used to support schools new to the EAST program. EAST selects up to 15 new schools each year, and purchases about $67,000 worth of equipment and software for the schools. The remaining $2 million of funding is used to support existing programs. EAST provides professional development for EAST teachers, training for students on the specific technologies in their classroom and technical assistance throughout the year. The EAST program also hosts an annual conference where students showcase their activities for the year.[7]

The following graph shows districts' and charter schools' per-student expenditures for technology from foundation funding between 2011 and 2017. While districts have fairly consistently increased their per-student technology spending each year (about 7% annually on average), charter school spending has been more erratic. However, between 2011 and 2017, charter school per-student spending from foundation funding has increased nearly 90%. This may be due in part to the enrollment growth in some of those charter schools and the commensurate investment in technology that comes with it. A number of charter schools opened between in 2011 and 2017, requiring initial investments in technology with each new charter school.

[6] EAST Initiative, retrieved at https://www.eastinitiative.org/aboutcontact/annualreport.aspx
[7] Forst, M., EAST Initiative, May 7, 2018, email.



TECHNOLOGY IN THE CLASSROOM

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

Survey Question: Rank the barriers your district/school faces to the use of technology in the classroom, where 1 is the MOST SIGNIFICANT BARRIER and 9 is the LEAST SIGNIFICANT BARRIER.

	Superintendent Rank (Avg. Rank)	Principal Rank (Avg. Rank)	Teacher Rank (Avg. Rank)
Inadequate technology in students' homes	1 (2.7)	1 (2.7)	1 (3.3)
Inadequate number of technology support staff	2 (4.1)	2 (3.9)	2 (4.6)
Inadequate teacher training	3 (4.4)	3 (4.7)	5 (4.8)
Inadequate supply of other types of equipment	4 (5.0)	4 (4.8)	3 (4.8)
Inadequate supply of computers	5 (5.3)	7 (5.5)	6 (5.2)
Inadequate interest among teachers	6 (5.4)	8 (5.9)	7 (5.6)
Inadequate bandwidth	7 (5.5)	5 (5.2)	4 (4.8)
Inadequate knowledge or skills among technology support staff	8 (6.1)	6 (5.4)	8 (5.7)
Inadequate interest among administrators	9 (6.5)	9 (7.0)	9 (6.1)

The survey results indicate the superintendents, principals and teachers surveyed agreed that inadequate technology in students' homes was the most significant barrier. A lack of technology and internet access is a particular problem for Arkansas families. The state ranks 46th among the 50 states and Washington D.C. in the percentage of households with a computer, including smart phones. The state ranks 50th in the percentage of households with internet access, ahead of only Mississippi.

	Households with computer (including smart phone)	Households with internet access
National Average	86.8%	77.3%
Arkansas	81.7%	65.2%

Source: National Center for Education Statistics, Digest of Education Statistics, Number and percentage of households with computer and internet access, by state: 2015, Table 702.60

Superintendents, principals, and teachers responding to the technology survey question also agreed the second most significant barrier (a distant second) was an inadequate number of technology support staff. Administrators and teachers differed however, in their ranking of technology equipment and internet access. Teachers ranked an inadequate supply of equipment (beyond computers) and inadequate bandwidth as more significant barriers than superintendents and principals did.

A similar question was asked of superintendents and teachers in the 2016 adequacy study, and the results in 2018 mirror most of the 2016 rankings. However, the issue of inadequate bandwidth diminished as an issue for superintendents. It ranked as the 3rd most significant barrier in 2016, falling to 7th in 2018. This change in the ranking may result from upgrades made to the broadband network connecting districts across the state. (See page 16 for a description of these efforts.) However, bandwidth as a barrier ranked as the 4th most significant barrier for the teachers surveyed in both years.

To gauge educators' satisfaction with the quantity and quality of the technology in their district, the BLR survey posed the following question to superintendents, principals and teachers.

Survey Question: Rate the QUANTITY and QUALITY of the following technology resources in your district/school:

- Computers and devices
- Software and electronic subscriptions
- Staff with expertise in integrating technology in the classroom
- Tech support

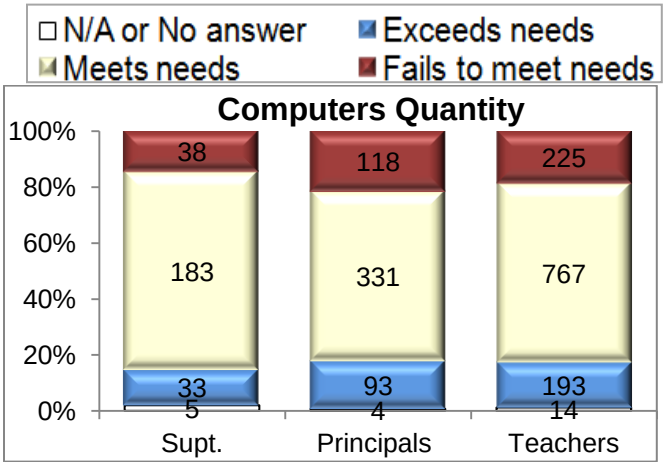
Multiple choice options for QUANTITY

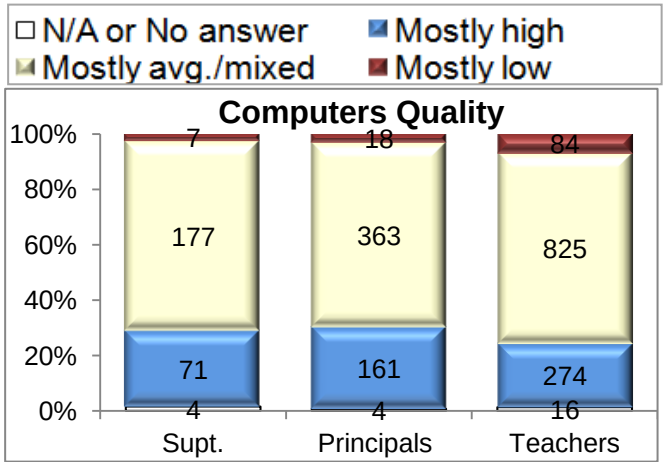
- Exceeds school's needs
- Meets school's needs
- Fails to meet school's needs
- Not available

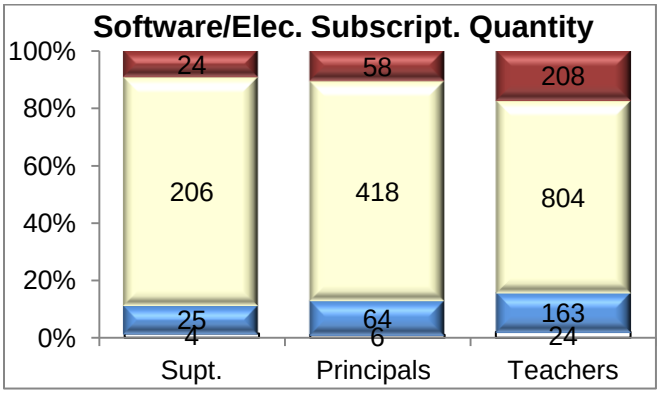
Multiple choice options for QUALITY

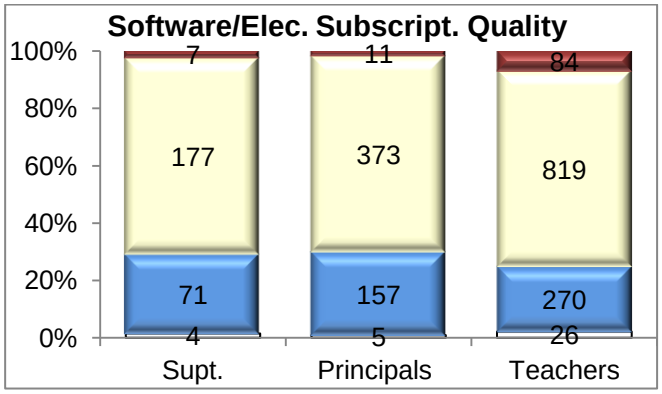
- Mostly high quality
- Mostly average quality
- A mix of high, low, and average quality
- Mostly low quality
- Not available

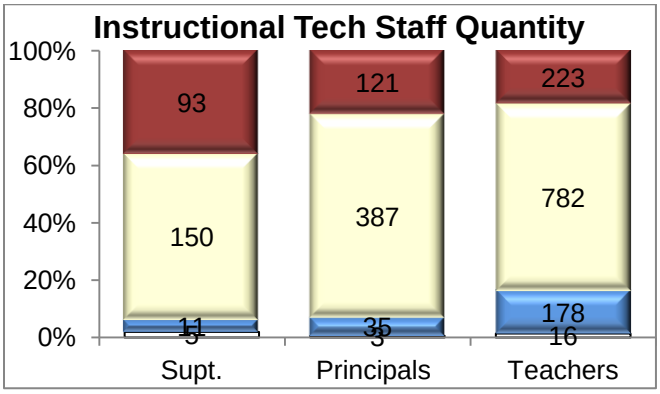
Superintendents responded that they are less satisfied than principals and teachers with the numbers of tech support staff and instructional staff with technology expertise, while teachers and principals more frequently than superintendents responded that their supply of software and computers fails to meet their school's needs. A higher percentage of superintendents and principals than teachers rated their computers, software and tech support staff as being "mostly high quality," but a higher percentage of teachers rated their instructional technology staff as mostly high quality.

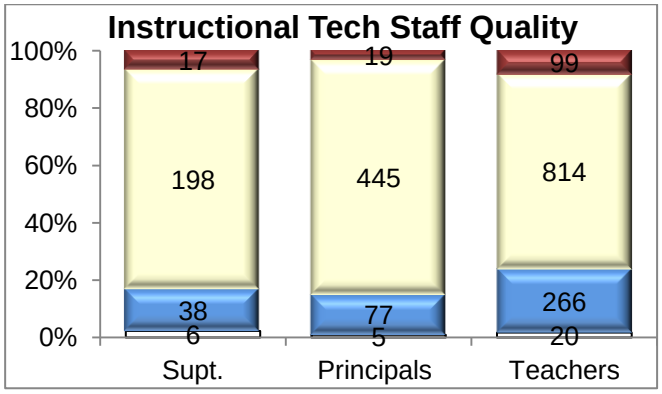


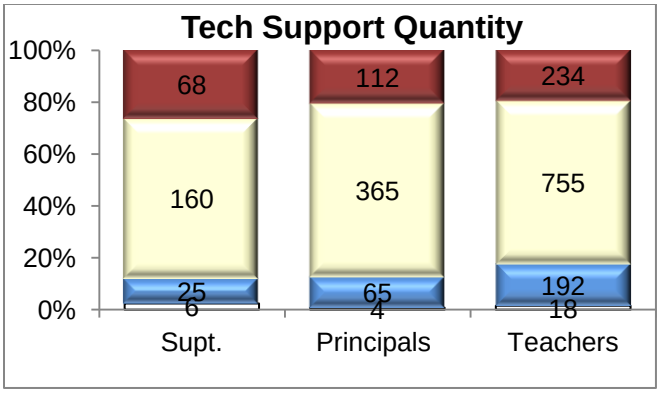


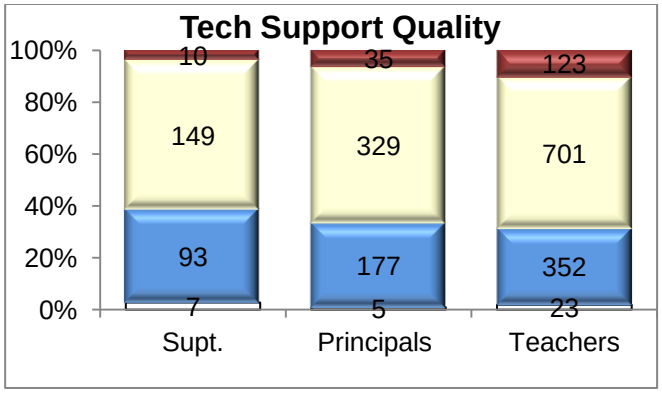












To supplement these survey results, the BLR asked principals more general, open-ended questions during site visits to 73 randomly selected schools.

School Site Visit Interview Question: How well does your school's technology infrastructure, equipment and staff meet the administrative and educational needs of your school?

Nearly half of the principals interviewed mentioned their technology needs were either being met adequately or they did not have any technology needs. Several principals said they were dissatisfied with the technology resources, and some principals mentioned additional technology wish-list resources. About 55% of principals mentioned either having at least one computer per student or actively moving toward attaining that goal. The fact that so many principals mentioned the idea of 1 computer for every student as an achievement or a goal suggests how widespread 1 to 1 is as current standard. Several principals credited tech savvy administrators as the reason for recent investments and focus on technology in their district, and several said they rely on younger more tech savvy teachers to lead veteran teachers on the use of instructional technology. While several principals mentioned the quality of their IT staff, many principals said they would like to have more IT staff. About 10% of the principals mentioned infrastructure deficiencies, such as inadequate electrical power to recharge the schools Chromebooks or needing a new computer lab

but having no space in the school building for it. Another 10% of principals said they benefitted from recent infrastructure upgrades or praised the condition of their school's current infrastructure.

School Site Visit Interview Question What are your school's most significant needs in terms of technology. Please consider all infrastructure, equipment and technology staffing needs.

The most commonly cited technology needs were IT/instructional technology staff and computers/devices. About 30% of principals interviewed said they need more staff with technology expertise. Some principals mentioned needing more IT staff responsible for fixing technology problems that can interrupt teachers' planned instruction; while others wished for a full-time IT employee in their school, rather than having to share staff with other campuses. Still other principals said they wanted an instructional technology specialist to help teachers plan instruction around technology. About 25% of the principals mentioned a need to have more computers, while another 10% said they needed more equipment, including interactive whiteboards. (Principals frequently provided more than one answer, so percentages do not sum to 100%.) About 20% of principals said their teachers could benefit from more training and professional development to help use technology more effectively in their teaching. A handful of teachers mentioned the need for greater internet access in their students' homes. Several principals mentioned the need for IT maintenance and repair. About 10% of the principals said they have no technology needs.

TECHNOLOGY COORDINATORS

As noted by the survey and interview responses, more technology staff support is a frequently cited need. To assist districts' with some of their technology staffing needs, the state provides annual funding for **Cooperative Education Technical Centers Operations.** In 2016-17, the state provided nearly $1.2 million for this program to employ technology coordinators in the state's 15 educational service cooperatives. Each cooperative received $75,000 to employ one technology coordinator to help member school districts determine technology needs, analyze their technology systems and design local networks. (In addition to the 15 cooperatives, the Little Rock School District received $71,914 for the Pulaski County school districts, which are not served by a cooperative.) 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 "in school district technology planning." The rules also call for technology coordinators to have "relevant training in network operating systems and management information systems."

COMPUTERS AND DEVICES

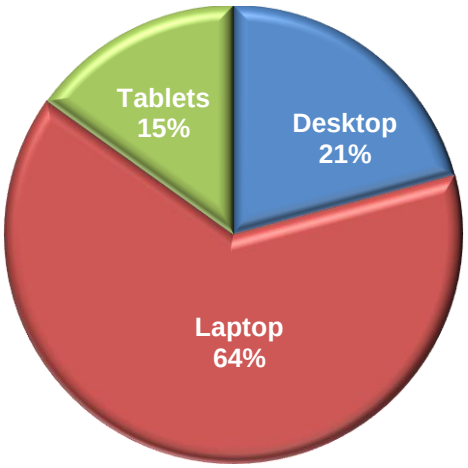
Computers and devices are also frequently mentioned as a resource districts need more of. To assess districts' supply of computers and devices, the BLR asked superintendents to answer the following question.

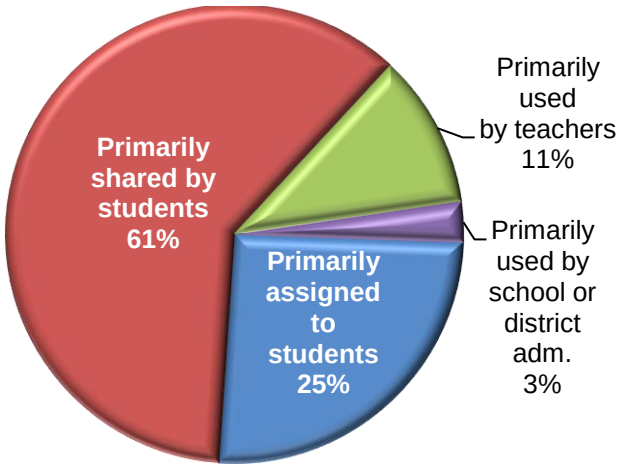
Superintendent Survey Question: How many computers does your district have? Enter the number of each type of computer listed below used by the following groups. Include only computers that can connect to the internet, but do NOT include phones, portable media devices or other small electronics. Each computer should be counted only once.

- Desktop computers
- Laptop computers
- Tablets
- Primarily assigned to individual students
- Primarily shared by students (e.g., computer labs, media center)
- Primarily used by teachers
- Primarily used by school or district administrators or other staff

Districts and charter schools reported having a total of about 641,000 computers statewide, or about 1.4 computers for every student. When counting only computers used by students, districts reported about 1.2 computers per student. The ratios ranged from .20 (one computer for every five students) in one district to 2.7 computers per student in another. Seventy-five districts and charter schools reported having fewer than 1 student-used computer per student. (These calculations exclude 12 districts and one charter school that did not respond to this question.[8])

The majority of computers that districts have are laptop computers. Of the computers districts reported, 25% were said to be assigned primarily to individual students, compared with 61% that were primarily shared by students. Still 102 of the responding districts and charter schools said they have no computers primarily assigned to individual students.





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 expressed concern about the availability and high cost of broadband that's sufficient 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 did not meet the recommended broadband level of 100Kb/s per student.

Some steps have been taken to improve those numbers. In 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 connectivity. DIS issued an invitation for bid (IFB) for which providers could bid to provide service on the enhanced network. In some cases, providers were awarded contracts to serve districts on the new APSCN network that districts had previously contracted with directly. The work to connect all districts and charter schools to an all fiber network began in July 2015, and work was completed July 2017. The network improvements were funded through the existing $13 million that ADE pays DIS annually for broadband (a subset of DIS's total charges to ADE). Since the start of the project, DIS's billings for K-12 broadband services increased by about $1 million annually, in part due to the ongoing cost of connecting charter schools as they expand or new schools are created.[9] Under the new network, all districts receive at least 200 kb/s per user (i.e., all students, faculty, administrators, etc.).

For many years, it was difficult to determine how much money districts themselves spent on broadband because there were no specific APSCN expenditure codes districts could use when

[8] One charter school reported only having one computer (assigned to an individual student) so it was included as one of the non responders.

[9] McDaniel, D., Department of Information Systems, May 11, 2018, phone call.

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 recorded any broadband expenditures. Many districts recorded no broadband expenditures at all. The lack of expenditures in some districts and the decline in total expenditures between 2016 and 2017 may be due to the APSCN network upgrades. The network enhancements may have made districts' own broadband purchases—outside the state-provided broadband—unnecessary.

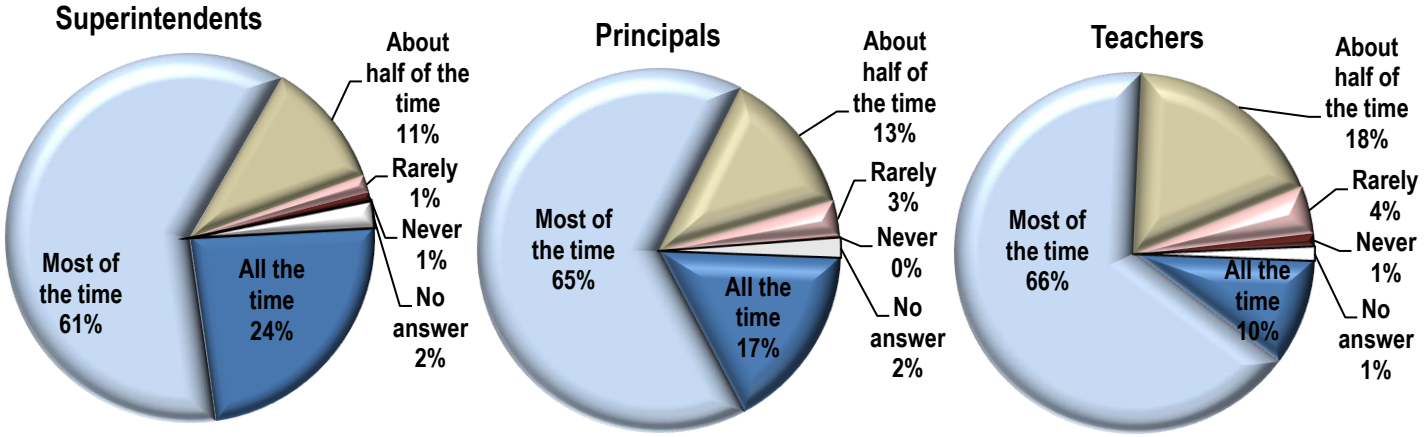
	Broadband Expenditures	Average Broadband Expenditure Per Student	Districts/Charters Reporting Any Broadband Expenditures
2013-14	$4,672,085	$16.42	120
2014-15	$7,350,475	$19.47	189
2015-16	$8,987,522	$23.91	196
2016-17	$6,352,333	$19.47	163

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

Survey Question: How sufficient is your district's broadband in allowing for smooth operations of all instructional and administrative functions?

1. It's sufficient **all the time**.
2. It's sufficient **most of the time**.
3. It's sufficient **about half of the time**
4. It's **rarely** sufficient.
5. It's **never** sufficient.

Superintendents tended to be more satisfied with districts' broadband than principals and teachers. About 85% of superintendents said their broadband was sufficient all or most of the time, compared with 82% of principals and 76% of teachers.



Superintendents, principals and teachers differed very little in their responses based on the rural or urban nature of their districts. The average rating of survey respondents is provided by the following community categories. The categories come from the National Center for Education Statistics (https://nces.ed.gov/programs/handbook/data/pdf/appendix_d.pdf) and are defined with district examples below. (This analysis excludes Jacksonville North Pulaski School District, Future School of Fort Smith and Arkansas Connections Academy, which began operating after the timeframe for the most recent available data for locale classifications—2015-16.)

	Average Response		
	Superintendents	**Principals**	**Teachers**
City	1.9	2.1	2.2
Suburb	2.1	1.9	2.1
Town	1.8	2.1	2.2
Rural	2.0	2.0	2.3

1. It's sufficient **all the time**.
2. It's sufficient **most of the time**.
3. It's sufficient **about half of the time**
4. It's **rarely** sufficient.
5. It's **never** sufficient.

City: Territory inside an urbanized area and inside a principal city (example, Pine Bluff, Little Rock, Springdale)

Suburb: Territory outside a principal city and inside an urbanized area (examples, Van Buren, PCSSD, Brookland)

Town: Territory inside an urban cluster and outside an urbanized area (examples, Beebe, Dardanelle, Fordyce)

Rural: Census-defined rural territory outside an urbanized area (examples, Batesville, Deer-Mt. Judea, Marvell-Elaine)

To assess, the extent to which improvements in the broadband network have improved through the enhancements to APSCN, the BLR asked principals the following open-ended question.

School Site Visit Interview Question: How has the APSCN high speed broadband upgrade affected your administrative and educational functions that require an internet connection?

About 55% of the principals said their broadband had improved with the APSCN enhancements, and another 14% of the principals said they either didn't notice a change or that their broadband was always sufficient and remains so. Several principals pointed to occasional internet speed/access issues, access consistency problems, and frustrations with the state's systems going down at inopportune times. (A number of principals did not specifically address whether their broadband had improved or not.) Several principals mentioned that online testing can be administered much more smoothly, and testing times no longer need to be staggered to spread out broadband usage. About a quarter of the principals interviewed said the upgrades allowed their district to stop buying supplemental broadband to support their districts' access. Still about 10% of the principals said that while they may have noticed improvements in their districts' broadband, their districts are still purchasing additional broadband on their own.

DISTANCE LEARNING

A major change affecting districts' technology needs is the significant increase in the delivery of instruction through distance/digital learning. Distance learning was originally implemented in the state by Act 1083 of 1999. As later stated explicitly in Act 1192 of 2003, distance learning 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 credit-bearing courses offered through distance learning must meet the curriculum standards and requirements adopted by the State Board of Education or the Arkansas Department of Career Education (ARCareerEd) and 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. ADE rules approved in 2016 indicate that digital learning courses are considered "large group instruction courses," which means they are not required to comply with class size limits. Previous rules limited distance learning classes to 30 students per teacher.

ADE's rules for distance learning also require an "adult facilitator" in the brick and mortar classroom where students actually take the course. For some distance learning courses that use an onsite teacher with digital content (see blended learning on page 19), the onsite teacher typically serves

as the adult facilitator. But for courses that are taught entirely online, the adult facilitator is different from the course's primary instructor. The adult facilitator is responsible for supervising instructional activity and administering assessments used to determine students' course grades. To determine the number of facilitators districts use and the type of staff typically serving this role, the BLR asked superintendents the following survey question.

Superintendent Survey Question: How many FTEs work in your district as a facilitator for digital learning course(s)? Please count employees who facilitate DL for only part of the day as partial FTEs (e.g., .5 FTE). DO NOT include any teachers serving as the teacher of record for the DL course. Include only FTEs serving as a facilitator for students taking courses taught by others.

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 teachers to serve as the distance learning facilitator. Thirty-nine districts either did not respond to this question or indicated they had no staff serving as digital learning facilitators. If the paraprofessionals cost $25,042 (based on the average salary and benefits of an instructional aide in 2016-17) and all other staff below cost a teacher's salary, the additional per-student cost of distance learning facilitators would be $58.[10]

	Total FTEs	Districts/Charter
Teachers	209.8	128
Guidance counselors	11.5	13
Library media specialists	25.4	21
Tech support specialists	52.35	25
Nurses or other pupil support	9.9	10
Non-licensed paraprofessional	240.8	153
Volunteers	2	2
Others	21.3	5
No FTEs for DL Facilitator	0	39

Seven districts' responses were excluded from this analysis. These districts appear to have provided implausibly large numbers of staff serving as DL facilitators (nearly all or more than the total number of certified staff in the district).

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.[11] 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. ADE specifies however, that there is a difference between a blended learning course that complies with Act 1280 and a course that happens to use online resources in the classroom. For a blended learning course to count as a digital learning course, it must allow students to have some control over the pacing and place of learning. Blended learning digital learning courses may also involve online content personalized for students or a learning management system, rather than simply using videos or academic content available online.

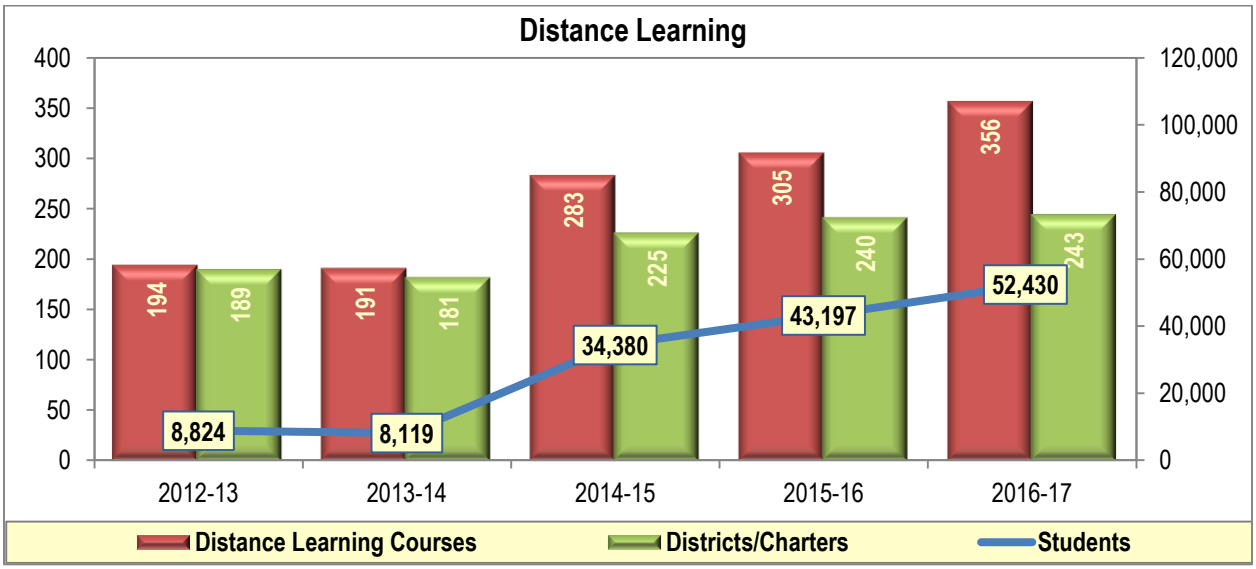
[10] This calculation is based on the number of students in districts, less the students in seven districts that listed implausibly high numbers of digital learning facilitators.

[11] State statute refers to both "distance learning" and "digital learning". For a number of years, distance learning typically referred to instruction delivered in one location and made available to classrooms across the state via compressed interactive video. As distance learning began to rely less on compressed video, the terminology shifted to "digital learning". State statute defines digital learning as "a digital technology or internet-based educational delivery model that does not rely exclusively on compressed interactive video" (§ 6-16-1403). ADE rules further specify that "digital learning may be a type of distance learning" (Rules Governing Distance and Digital Learning).

In the APSCN system, districts identify their distance learning courses as content only, full service, or home grown. **Full service** delivery means the entity providing the online course (the online course vendor) employs the teacher of record and is responsible for providing all content and curriculum. **Content only** indicates the district's own teacher serves as the teacher of record, but the course relies on curriculum delivered online by an outside vendor. **Home grown** means the online content is developed by the school or district, and instruction is delivered by a district-employed teacher.[12] Home grown courses do not utilize an outside vendor. The most commonly used digital learning delivery method is full service as shown in the following table. (Courses offered by multiple schools or districts, and students taking multiple digital learning courses are counted more than once.)

Delivery Method	Courses	Students
Content only	443	19,039
Full service	4,020	48,983
Home grown	331	21,315

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 Introductory Craft Skills, 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 in the following chart represents individual students enrolled in at least one digital learning course.



Districts differed in the number of digital learning courses they offered in 2016-17. Thirteen of the 24 open enrollment charter schools and three traditional school districts had no students enrolled in distance learning courses, according to the course registration data in APSCN.[13] However, the three school districts paid membership and student enrollment fees to Virtual Arkansas, suggesting they were actually offering digital learning courses and students were taking them, but the districts were not recording the courses in APSCN as digital learning courses. One of the charter schools that recorded no digital learning courses is an online school, so that school is presumably offering digital learning courses despite how they're coding the courses in APSCN. Eight of the other charter schools that did not register students in distance learning courses, served elementary or middle school students only. Although the law requires all school districts and charter schools—not just high schools—to provide distance learning, some of charter schools may have considered distance

[12] http://www.arkansased.gov/public/userfiles/Learning_Services/Digital_Learning/FAQ_for_Act_1280.pdf

[13] One of those charter schools is an online school, so presumably all of its courses are delivered through digital learning. Its lack of students taking distance learning courses may represent an error in the school's course coding.

learning a high school requirement. ADE acknowledged that, in past years, the agency did not adequately ensure districts and charter schools were complying with the statute. However, ADE officials said distance learning offerings are now being monitored through ADE's accreditation desk audit process.[14]

Fourteen districts had just one distance learning course, while one district had students enrolled in 79 distance learning courses, and one online charter school offered 120 distance learning courses. On average, districts offered (with students enrolled) nearly 20 distance learning courses. The most popular courses offered in 2016-17 as distance learning courses, based on the number of districts offering them and the number of students enrolled, are listed below.

Districts Offering Course as Distance Learning	Students Enrolled in Course Delivered Through Distance Learning	Course
125	10,862	Health and Wellness (.5 Credit)
111	1,853	Spanish I
97	769	Essentials of Computer Programming
96	874	Spanish II
96	2,490	Oral Communication (.5 credit)
96	6,340	Economics (.5 credit)
90	2,525	Civics (.5 credit)
86	1,123	United States History Since 1890
84	1,140	Physical Science
83	1,300	Other Local Credit
80	523	Psychology (.5 credit)
80	674	Medical Terminology (.5 credit)
80	724	Concurrent Credit Beyond Algebra II
76	879	Biology
75	1,099	Algebra II
75	1,567	World History Since 1450
74	540	Environmental Science
73	2,183	English 10
72	1,824	English 9
72	985	Geometry
72	785	English 12
65	4,381	Computerized Business Applications
6	1,774	Computer Applications I (.5 credit)
5	1,463	Keystone (.5 credit)
58	1,379	Career Ready 101 Online (.5 credit)
7	1,138	Technology Design and Applications
68	1,076	Algebra I

Act 1280 of 2013 also required students, beginning with the ninth grade class of 2014-15, to take at least one digital learning course to graduate from high school. The senior class of 2017-18 was the first class to graduate with this requirement. An ADE official indicated that the agency does not monitor individual student transcripts to ensure graduation requirements are met, but that she is not aware of any student prohibited from graduating due to not having taken a digital learning course.

Districts' delivery of distance learning is supported by two state appropriations, Distance Learning and Distance Learning Operations, which together provide $11 million to $12 million annually to fund a statewide system of distance learning for Arkansas public schools.[15] In 2016-17, about $4.7 million of the distance learning funding was distributed to three education service cooperatives to develop and provide distance learning courses (see Virtual Arkansas on page 22). The Arkansas

[14] Smith, S., Arkansas Department of Education, June 4, 2018, phone conversation.

[15] These funding amounts come from two separate but related appropriations, Distance Learning and Distance Learning Operations.

School for Mathematics, Sciences and Arts also received $500,000 to develop distance learning curriculum and professional development for teachers. The Department of Information Systems (DIS) received about $4.6 million of the Distance Learning funding to provide broadband/connectivity and internet access to districts through the APSCN network. Additionally, at the end of FY2016, Arch Ford Education Service Cooperative received about $995,000 for use in FY2017 to fund eight distance learning support specialists serving districts statewide.[16]

Distance Learning and Distance Learning Operations funding	2016-17 Funding Amount
Department of Information Systems	$4,643,783
Arch Ford Education Cooperative	$2,852,362
Dawson Education Cooperative	$1,098,060
Southeast Arkansas Education Cooperative	$756,988
University of Arkansas, Arkansas School for Mathematics, Sciences and Arts	$500,000
Southwest Arkansas Education Cooperative	$156,000
Software House International Corp.	$432,644
Other	$256,390
Total	**$10,696,227**

Digital Learning Vendors

Act 1280 also established criteria for companies to become "approved digital learning providers" in Arkansas. Prior to this law's passage, distance learning courses were primarily offered by 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 of distance learning courses statewide. Virtual Arkansas activities are organized by a state coordinator housed at the Arch Ford Cooperative and are supported by a portion of the state Distance Learning funding (see previous table for information about total Distance Learning funding).

Distance Learning Funding For Virtual Arkansas	2016-17 Funding Amount
Arch Ford Education Cooperative	$2,852,362
Dawson Education Cooperative	$644,583*
Southeast Arkansas Education Cooperative	$756,988

*The Dawson Coop received additional Distance Learning funding beyond the amount included in the coop's contract for Virtual Arkansas.

The three co-ops that make up Virtual Arkansas—Dawson (Arkadelphia), Southeast Arkansas (Monticello), and Arch Ford (Plumerville) — employ the instructors teaching the classes. The Arch Ford cooperative serves the administrative functions of Virtual Arkansas. Dawson employs 15 instructors, Southeast uses 11 instructors, and Arch Ford has 52 distance learning instructors. Each cooperative has its own course specialty to avoid significant overlap in course offerings. Dawson specializes in career and technical courses, Southeast Arkansas in courses that provide concurrent credit, and Arch Ford in courses providing the required 38 credit units and other courses. The University of Arkansas at Monticello (UAM) and Arkansas Tech University are the two higher education institutions that have provided college credit for concurrent courses. However, UAM will not be partnering with Virtual Arkansas in the future. Arkansas Tech indicated that the university charges Virtual Arkansas students the university's full tuition rate, but Virtual Arkansas (the Southeast coop) actually pays those charges on behalf of the students.[17] Arkansas Tech then returns the full amount of funding to pay for the instructors who are employed by the coop. With the funding swap, Arkansas Tech ends up receiving no net financial gain for the concurrent credit, but the exposure to students can help recruit graduates to the college.

[16] Russell, L., Arkansas Department of Education, May 14, 2018, email.
[17] Brock, J., Arkansas Tech University, May 14, 2018, phone conversation.

To supplement the Distance Learning funding provided through ADE, districts that use Virtual Arkansas pay the consortium an annual membership fee of $2,500. According to Virtual Arkansas's billing records, 214 districts and open enrollment charter schools paid to be members. The consortium also charges a fee of $25 per student per course per semester for distance learning courses in which the districts enrolled students (or $50 per student per course for students enrolled after May 31 each year for the fall semester). If districts want to access the Virtual Arkansas content, using their own teachers, the fee is $15 per student per course per semester. Districts and charters paid Virtual Arkansas a total of $555,000 in annual membership fees in 2016-17 and another $1,327,743 in student fees, giving the consortium a total of about $6.1 million in funding. That equates to a total per-student, per-semester cost of about $133.[18]

Act 1280 opened 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. In 2016-17, there 41 approved distance learning providers. However, because Virtual Arkansas is supported by state funding, making its courses generally less expensive for the districts than those offered by private providers, Virtual Arkansas remains the primary digital learning provider in Arkansas public schools.

The following table shows the distance learning providers used by Arkansas school districts and charter schools in 2016-17 and the number of students enrolled in courses offered by each provider, according to enrollment data districts reported through APSCN. Students taking more than one course are counted for each course taken. K12 Virtual Schools is the vendor providing course content for the online charter school the Arkansas Virtual Academy. All courses taken by the school's 2,000 students were included in that vendor's student count in the table. 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, 11 districts that paid distance learning fees to Virtual Arkansas, according to Virtual Arkansas invoicing data[19] recorded their distance learning provider in APSCN as a different vendor or "NA."

Digital Learning Provider	Students
Virtual Arkansas	28,331
K12 Virtual Schools, LLC (Fuel Education/Aventa/Middlebury)	16,340
Apex Learning, Inc.	7,656
Edgenuity, Inc	2,396
Edmentum, Inc	1,217
Connection Education, LLC	1,030
Southeast Arkansas Community Based Education Ctr.	397
Big History Project	338
Arkansas State University	327
Northwest Arkansas Community College	242
Arkansas Northeastern College	223
University of Arkansas at Fort Smith	218
Arkansas School for Mathematics, Sciences & the Arts	188
Arkansas Department of Career Education	182
Odysseyware Academy (formerly Bridgewater)	166
BYU Independent Study	147
Arkansas Public School Resource Center	137
Ozarka College	106
North Arkansas College	67
Rich Mountain Community College	57
University of Arkansas Cossatot Community College	31
University of Arkansas Community College - Batesville	15

[18] This calculation uses student count numbers provided by Virtual Arkansas, rather than course data the districts recorded in APSCN. Russell, L., Arkansas Department of Education, May 11, 2018, email.
[19] Russell, L., Arkansas Department of Education, May 11, 2018, email.

Digital Learning Provider	Students
Southern Arkansas University - Magnolia	11
Crystal Bridges Museum of Art	3
Arkansas State University - Mountain Home	2
South Arkansas Community College	2
Not Applicable	24,375
Other	5,176

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

To gauge educators' satisfaction with the approved digital learning vendors operating in Arkansas, the BLR surveyed superintendents and principals and asked them to rate the vendors' curriculum, teaching, tech support and overall ease of use. It should be noted that there was significant mismatch between the distance learning vendors superintendents listed in the BLR survey and the vendors they reported as delivering courses in APSCN.

Superintendent Survey Question: For each digital learning vendor your district used in 2016-17, please rate the quality of the vendor's **curriculum and teaching services**, where 1=low quality and 5=high quality. Please also rate the vendor's **technical support** and ability to eliminate technical problems. If vendor content is used in a blended learning environment where district-employed teachers are the teachers of record, rate only the vendor's curriculum for "Quality of Curriculum and Teaching."

Vendors	Superintendents Responding That They Used Vendor	Avg. Quality Score for Curriculum	Avg. Quality Score for Tech Support
Virtual Arkansas	167	4.0	4.0
Apex Learning, Inc.	36	3.9	3.9
Arkansas Public School Resource Center	16	4.3	4.1
Edmentum, Inc.	15	4.1	4.1
Odysseyware Academy	15	3.7	3.8
Edgenuity, Inc.	8	4.0	4.6
University of Arkansas at Fort Smith	5	4.3	4.0
Arkansas State University	4	4.3	3.8
K12 Virtual Schools (Fuel Education/Aventa/Middlebury)	4	3.8	4.0
Northwest Arkansas Community College	3	4.0	4.0
Ozarka College	3	4.7	4.7
Rich Mountain Community College	3	4.7	4.7
Northwest Arkansas Education Service Cooperative	2	3.5	3.5
University of Arkansas Community College-Batesville	2	3.5	3.5
University of Arkansas Cossatot Community College	2	4.0	4.5
Arkansas School for Mathematics, Sciences & the Arts	2	4.0	4.5
North Arkansas College	2	3.5	3.5
Southeast Arkansas Community Based Education Center	2	4.5	4.5
Black River Technical College	1	4.0	2.0
Crystal Bridges Museum of Art	1	4.0	4.0
Connection Education	1	3.0	3.0
BYU Independent Study	1	1.0	1.0
Southern Arkansas University-Magnolia	1	4.0	4.0
Southeast Arkansas College	1	5.0	5.0

Principal Survey Question: Please list each digital learning vendor your school used in 2016-17. Using a scale of 1 to 5, please rate the quality of the vendor's **curriculum and teaching services** where 1=low quality and 5=high quality. If vendor content is used in a blended learning environment where district-employed teachers are the teachers of record, rate only the vendor's curriculum for "Quality of Curriculum and Teaching." Please also rate the vendor's **technical support** and ability to eliminate technical problems.

Vendor	Principals Responding That They Used Vendor	Avg. Quality Score of Curriculum	Avg. Quality Score of Tech Support
Virtual Arkansas	100	4.0	4.0
Apex Learning, Inc.	34	3.7	4.0
Edgenuity, Inc.	20	3.7	3.7
Arkansas Public School Resource Center	19	3.9	4.1
Edmentum, Inc.	18	3.9	4.1
Odysseyware Academy	14	4.2	3.8
Crystal Bridges	12	4.7	4.6
Northwest Arkansas Education Service Cooperative	10	4.8	4.6
Arkansas State University	6	4.4	4.5
Arkansas Department of Career Education	6	4.2	3.8
Ozarka College	5	4.2	4.0
K-12 Virtual Schools (Fuel Education/Aventa/Middlebury)	4	3.0	3.3
Northwest Arkansas Community College	3	4.3	4.3
Arkansas Northeastern College	3	4.0	4.7
University of Arkansas Cossatot Community College	3	5.0	5.0
Connection Education	2	4.0	3.5
University of Arkansas at Fort Smith	2	4.5	4.5
BYU Independent Study	2	2.5	3.0
Arkansas School for Mathematics, Science & the Arts	2	5.0	
Rich Mountain Community College	2	4.5	4.5
South Arkansas Community College	2	5.0	5.0
Southern Arkansas University Magnolia	2	4.5	4.0
University of Arkansas Community College Batesville	1	5.0	5.0
Delta YES, Inc.	1	4.0	4.0
Florida Virtual School Global	1	5.0	5.0
Arkansas State University Mountain Home	1	4.0	
North Arkansas College	1	5.0	5.0
National Park Community College	1	3.0	3.0
Southeast Arkansas Community Based Education Center	1	4.0	4.0
VLN Partners	1	4.0	4.0

Act 939 of 2017 created the **Quality Digital Learning Provider Task Force**, which is responsible for reviewing the structure and cost of delivering digital learning content and quality control measures and standards for digital learning. The law requires the non-legislative Task Force to produce a report by Dec. 1, 2018, that includes recommendations for improving the quality of digital learning, expanding its availability ensuring its affordability and efficiency, and developing and improving standards.

To better understand educators' perceptions of digital learning in their districts, the BLR asked several questions during the visits to a sample of 73 schools.

School site visit question: Does your school use any distance/digital learning? If yes, describe your school's experience with digital learning courses.

About a third of the principals interviewed said they offered distance learning, and all but two of those were principals of high schools. However, a number of other schools mentioned their use of digital content and applications. Those who said they offer distance learning described the courses in a variety of ways. Some principals mentioned the type of courses for which they use distance learning to cover. A couple said they offer health courses. Five said they use distance learning to offer foreign languages, electives and other courses the district would not be able to offer otherwise. Two said they use distance learning for core courses or to meet the accreditation standard that districts teach the required 38 units, and three indicated that they use distance learning for credit recovery and remediation. One principal said the school is using distance learning to recruit

homeschooled students. Two principals mentioned technical glitches that can be frustrating to both students and teachers. One principal mentioned that distance learning has helped fill gaps due to the difficulty of recruiting teachers to the area. While several principals mentioned that students' motivation is a more significant factor with distance learning than with traditional learning, one principal noted that distance learning teachers are tougher on students, compared with on-site teachers who are more likely to go easier on students they see every day. Two principals mentioned difficulty with vendors' grading system not being completely compatible with their schools' systems.

School site visit question: What has been the biggest challenge your school has faced with digital learning courses?

One of the most often repeated concerns about digital learning among the principals interviewed was students' focus and direction. About 10% of the principals noted that learning success in the digital environment is heavily dependent on the level of motivation of the students. Vendor issues were also frequently cited challenges, including communication issues, a mismatch between the vendor and the school's grading system, and the early registration process required by Virtual Arkansas. (Virtual Arkansas doubles its per-student fee for any student who registers after May 31st of the preceding school year.) A few principals mentioned the challenge of having enough computers for all students and maintaining them, and one principal mentioned students' lack of internet access at home.

School site visit question: How well does digital learning enable you to meet the educational goals your school has for students? Why?

Half of the principals who offer distance learning noted that online courses allow the school to expand the number of courses they can offer and better meet students' interests. Two other principals said it allows them to better meet the basic courses they're required to offer. For example, one principal noted that online options allowed the school to add sections of health, freeing the teacher to teach P.E. Four principals mentioned that distance learning has helped them close learning gaps and provide needed credit recovery. Five principals noted that distance learning allows them to better prepare students for college or offer more rigorous educational content.

School site visit question: How has the use of digital learning courses affected the cost of educating your students?

About half of the principals noted that distance learning is cost effective, with some noting that digital learning shifts their costs from teachers and textbooks to vendor fees and content. Some indicated digital learning actually allows their school to save money. Another 30% of the interviewed principals thought digital learning increased their costs, particularly at the beginning when significant investment in hardware is required. Three principals said they were unsure how digital leaning has affected their educational costs.

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."[20]

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

[20] Odden, A., Picus, L. O., & Goetz, M. (2006). Recalibrating *the Arkansas School Funding Structure.* Report prepared for Arkansas Joint Committee on Education, p. 40.

to the student (§ 6-21-403(a)). No districts were cited in 2016-17 for failure to provide instructional materials to students. The law also allows districts to select their own instructional materials and equipment, but requires all materials purchased with state funds to be consistent with the curriculum and educational goals established by the State Board of Education.

Existing 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" (10.03). However, newly approved standards slightly change the language regarding instructional materials to more closely mirror the statutory language: "Each public school district shall adopt instructional material consistent with the curriculum and educational goals established by the State Board of Education" (1-A.7).The new standards also require superintendents to sign a statement of assurance attesting that the district is providing "all necessary instructional materials to each student without cost to the student" (1-A.8).

Additionally, state law calls for the Facilities Division to develop a Public School Academic Equipment manual that must "contain uniform standards for technology systems, instructional materials and related equipment determined to be necessary for a public school to provide an adequate education" (§ 6-21-810(a)). A standalone equipment manual has not been developed. The Facilities Division has developed a Facilities Manual, which includes a section on equipment and furnishings, but it does not address standards for instructional materials.

BACKGROUND: INSTRUCTIONAL MATERIALS IN THE MATRIX

In 2003, the Joint Adequacy Committee adopted the recommendation that the state provide $250 per student for instructional materials and supplies[21]. 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 (mid-year assessments designed to gauge students' progress and areas of for additional instruction) 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.

2006 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

[21] In one part of the consultants' 2003 report, Picus and Associates indicated that the $250 per student was meant to cover "instructional materials, equipment, student activities" (p. xii) and in another part of the report "instructional materials and supplies" (p. 40).

opted not to include funding for formative assessments in the matrix. The instructional materials funding level gradually increased as annual inflationary adjustments were added through 2014-15. The instructional materials component of the matrix has not been increased since the 2014-15 school year.

In their final report of the 2016 Adequacy Study, the Education Committees recommended keeping the per-student foundation funding rate for instructional materials at the existing level for FY18 and FY19. Act 743 of 2017 increased the per-student foundation funding rate to include the following amounts for instructional materials:

	2018	2019
Per-Student Rate	$183.10	$183.10
% Change	0%	0%

The following sections of this report provide additional information about the components that comprise instructional materials expenditures.

TEXTBOOKS

In 2006, Picus and Associates' funding recommendation for textbooks was calculated based on the purchase of one textbook per student each year with a six-year textbook adoption cycle. They recommended providing $60 per elementary student, $70 per middle school student and $100 per high school student.

The following table shows districts' and charter schools' total expenditures for textbooks and eTextbooks for the last seven years, according to expenditures districts recorded in APSCN. These expenditures were made using all funding sources, not just foundation funding. While expenditures for eTextbooks have risen in recent years, the vast majority of those expenditures (about $2.8 million of the nearly $4 million eTextbook expenditures in 2017) were made by a single charter school.

	Textbooks	eTextbooks	Expenditures Per Student
2011	$25,902,433	$1,200,772	$59
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
2016	$24,436,974	$3,789,335	$60
2017	$20,879,166	$3,957,348	$53

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)). Act 511 also required textbook publishers and other companies selling instructional materials to annually submit to ADE a list of all state contracts the publishers had in the previous year and all instructional materials sold to each school district and their price. However, Act 929 of 2017 repealed this reporting requirement.

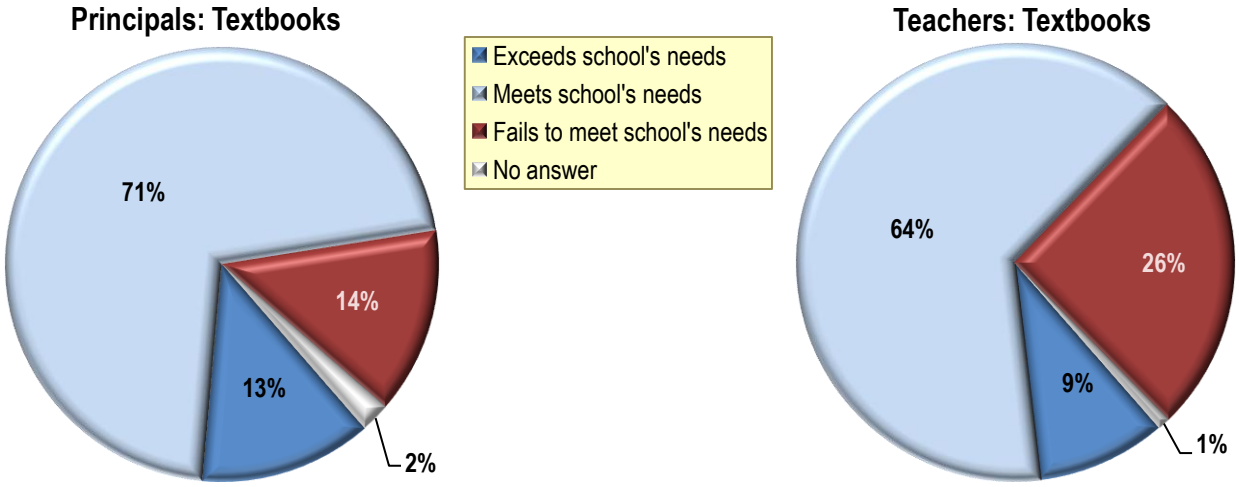
With the passage of Act 511, Arkansas became one of 31 states and the District of Columbia in which the selection and purchase of textbooks and other instructional materials occurs at the local level. In the other 19 states, textbooks are selected by the state education board or department, according to the Association of American Publishers. According to the most recent data available

from NCES, textbook adoption states spent an average of $57.38 per pupil on textbooks in 2014-15, while non-adoption states spent $62.61. Arkansas, which did not have a state adoption process in 2014-15, spent $40.28 per pupil. (The NCES data for 2014-15 do not include textbook expenditures for Alaska, Connecticut, Idaho, Illinois, New Hampshire, North Dakota, Texas, or Washington.)

Through the BLR's online surveys, principals and teachers were asked to provide their opinion about the supply of textbooks in their classroom.

Survey Question: Rate your school's supply of high-quality textbooks and reading materials for students in your school's classrooms. If your school is online, rate the supply of high-quality textbooks and reading materials your school makes available to students generally.

About 84% of principals said their supply meets or exceeds their school's needs, compared with about 73% of teachers. Notably, more than a quarter of the teachers responding to the survey said the supply of textbooks in their classrooms fails to meet their students' needs.



LIBRARY MATERIALS

State accreditation standards currently require each school media book collection to have at least 3,000 volumes, or eight books per student, whichever is larger (16.02.4). However, newly approved accreditation standards remove this specific requirement, while still requiring districts to "annually budge[t] and expend sufficient resources to purchase and maintain an appropriate balance of print, non-print, and electronic media that is adequate in quality and quantity to meet the academic standards for all students" (Standard 2-D.1).

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 level, according to the consultants, was above the national average at the time.

The following table shows district and charter school expenditures for library materials from all funding sources. The overall spending on these library materials declined about 25% between 2011 and 2017.

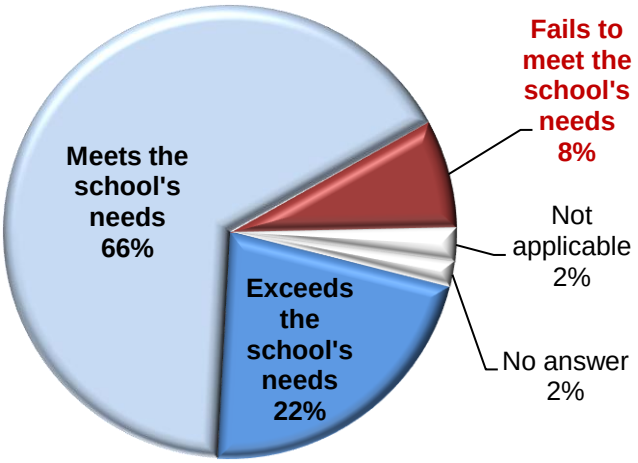
	Library Books	eLibrary Books and ePublications	Periodicals	Audiovisual Materials	Total Per Student
2011	$5,634,083	$4,971	$638,304	$365,010	$14
2012	$5,367,700	$14,957	$664,238	$353,402	$14
2013	$4,771,569	$74,894	$595,008	$343,926	$12
2014	$4,505,726	$209,849	$546,499	$192,203	$12
2015	$4,535,268	$188,526	$499,300	$228,807	$12
2016	$4,428,897	$283,187	$470,346	$140,835	$11
2017	$4,252,926	$209,052	$378,132	$108,697	$10

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

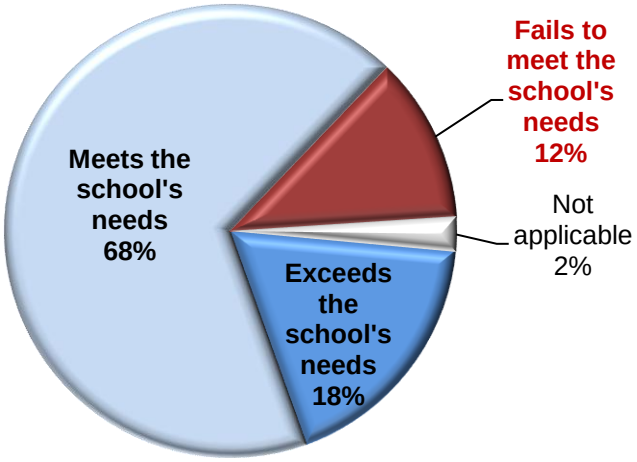
Survey Question: Rate your school's supply of high-quality reading materials for students in your school's media center?

About 88% of principals and 86% of teachers said the supply of reading materials in their libraries either meets or exceeds their school's needs. About 8% of principals and 12% of teachers said their library's reading materials fail to meet the school's needs. Notably, principals and teachers indicated they were more satisfied with their school library collections than they were with the supply of textbooks in their classrooms. About 84% of principals said their classroom textbooks met or exceeded needs, compared with 88% for library reading materials. Among teachers, 73% said their classroom reading materials met or exceeded needs, compared with 86% who were satisfied with their library book selection.

Principals
Reading Materials in Library



Teachers
Reading Materials in Library



FORMATIVE ASSESSMENTS

As previously mentioned, The Adequacy Subcommittee, in 2006, decided not to adopt its education consultants' recommendation to include funding for formative assessments in the instructional materials line of the matrix. This decision was based on the fact that such assessments are not required by statute or accreditation standards. 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 survey asked superintendents how much money they are spending on these tools.

Superintendent Survey Question: What was the total amount your district spent on formative assessments (e.g., The Learning Institute, NWEA) in 2016-17? (Do not include the cost of district staff to administer the assessments.) How much of that amount was spent using foundation funds?

Of the 235 school districts and 24 charter schools that responded to the survey, 97 school districts and charter schools did not spend any money on formative assessments in 2016-17. Twenty-four districts and charters did not respond to this question. The other 138 collectively spent just over $4 million on formative assessments, or about $15 per student in those districts. The cost per student ranged from $0.87 in one district to about $96 per student in another. However most districts and charter schools that did have formative assessment expenditures used funding other than foundation aid to make those purchases. Of the $4 million that districts and charter schools spent on formative assessments, only about 9.6% was spent using foundation funding.

The amount of money districts reported spending in 2016-17 decreased by about $1.6 million from districts' spending in 2014-15, according to a comparison with survey results from the 2016 adequacy study. The number of districts/charter schools that reported no expenditures for formative

assessments increased by about 83%. This change likely resulted from the fact that ADE switched the state assessments to ACT Aspire in 2015-16. The ACT Aspire contract included periodic assessments that districts and charter schools could use at no cost to them. An exact count of districts using the ACT Aspire is not available, but an ADE official believes a significant number of districts are taking advantage of this option.[22]

TEACHER PURCHASE OF INSTRUCTIONAL MATERIALS

Many teachers in Arkansas and across the country report spending their own money to pay for materials and supplies for their students. The most recent data indicate that 94% of public school teachers who responded to a National Center for Education Statistics survey said they spent their own money on classroom supplies without being reimbursed for their purchases in 2014-15. The percentage differed little based on whether teachers were employed in elementary schools (95%) or secondary schools (93%) or based on the level of poverty in the school (94% for teachers in schools with the lowest percentage of students eligible for free or reduced price lunch) or the highest (95%). On average, public school teachers reported spending $479. In terms of the amount spent, teachers in high poverty schools spent more than low poverty schools ($554, compared with $434), and elementary school teachers spent more on average than secondary school teachers ($526, compared with $430).[23]

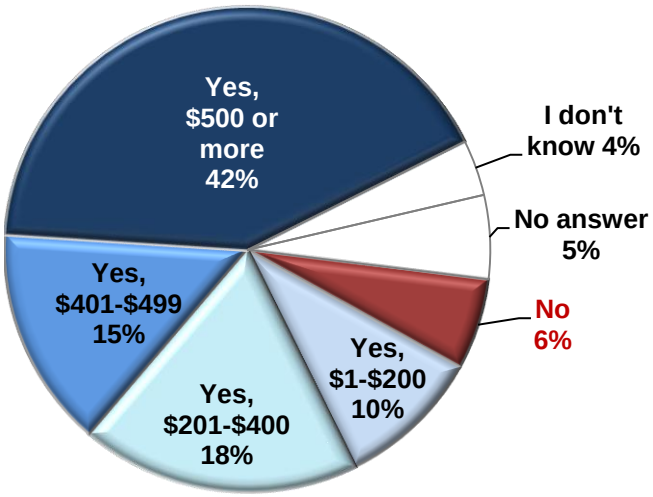
In 2017, the General Assembly passed Act 666 which allowed Arkansas public school teachers to claim a deduction on their annual state income tax filing for any classroom supplies they purchase. The legislation allowed teachers to claim up to $250 for an individual teacher or up to $500 for two married teachers filing jointly. The law was first effective for the 2017 tax year. For that year, 17,307 returns claimed the deduction, or about 45% of the state's public school teachers. Collectively those teachers claimed a total of $4,359,756, or about $252 per return, suggesting that these teachers spent as much or more than $250 of their own money on supplies for their classrooms.[24]

To help alleviate this issue, state law 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)). The requirement was created in 2001, but in 2003, the General Assembly increased the amount districts were to provide. In 2006, the Education Committees recognized this requirement within the matrix formula, by including $20 per elementary student to cover this cost. To determine the extent to which teachers are receiving those required funds, the BLR asked teachers the following question on the teacher survey.

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

Of the 591 elementary teachers who responded to the survey, about 85% said their school or district does provide money for supplies. However, 49% of the survey respondents said they receive less than the statutory amount or do not receive any money at all. About 33 elementary teachers who completed the survey did not respond to this question.

District provides money for supplies?



[22] Worsham, H., Arkansas Department of Education, June 5, 2018 email.
[23] U.S. Department of Education, National Center for Education Statistics, Public School Teacher Spending on Classroom Supplies, May 2018, https://nces.ed.gov/pubs2018/2018097.pdf
[24] Gehring, P., Department of Finance and Administration, May 22, 2018 email. DFA provided the number of returns claiming the deduction and the total amount claimed.

Some schools provide this funding as an allocation. For example, they may allocate $100 per teacher to make copies throughout the year and then allow teachers to spend the remaining $400 on the instructional supplies of their choice. Some teachers who responded that they receive less than $500 may be counting only the portion of the funding they control. The statute does not specify how the money is to be provided; only that it must comply with each district's established reimbursement policy.

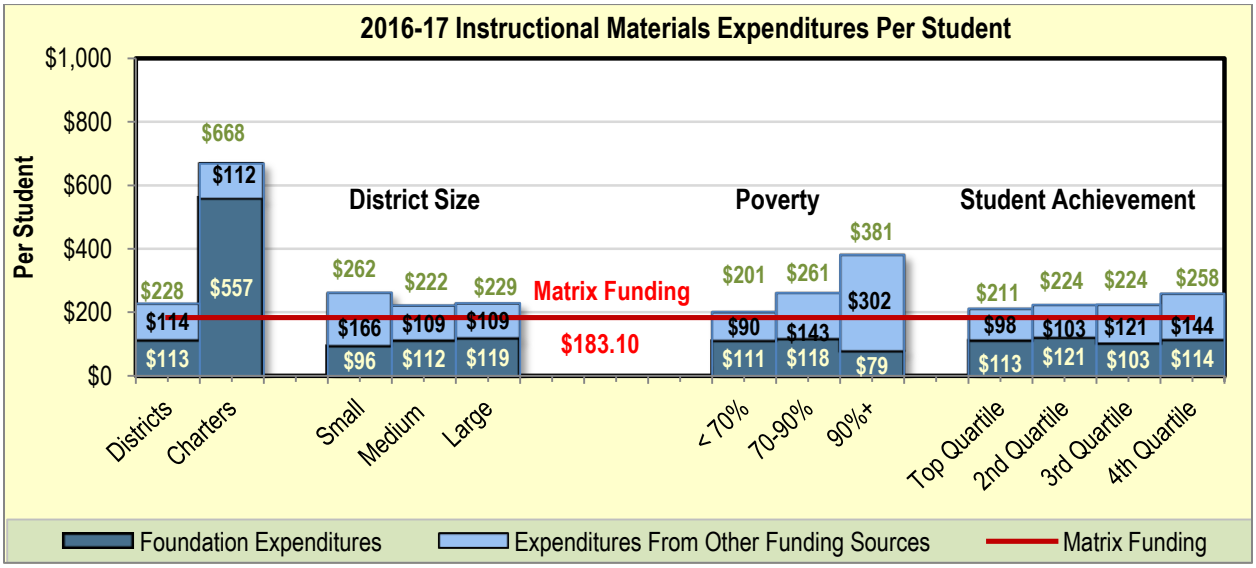
Another state law calls for ADE to provide a stipend of at least $100 per class to each elementary school for necessary supplies or equipment for visual art and music classes (§ 6-16-130(a)(4)). The statute specifies that this funding is contingent on the appropriation and availability of funding. According to the Department of Education, there has never been an appropriation or funding established for this purpose, therefore ADE does not provide these stipends.[25]

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2016-17, districts and charter schools collectively spent more than $59 million in foundation funding on instructional materials of all types. This equates to about $125 per student in 2016-17, compared with $183.10 funded in the matrix.

Instructional Materials: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2015-16	$86,492,210	$60,287,580
2016-17	$86,538,443	$59,265,914

The following chart compares the per-student spending of traditional school districts and charter schools for instructional materials. It also compares districts' per-student spending based on district size, poverty level and student achievement.

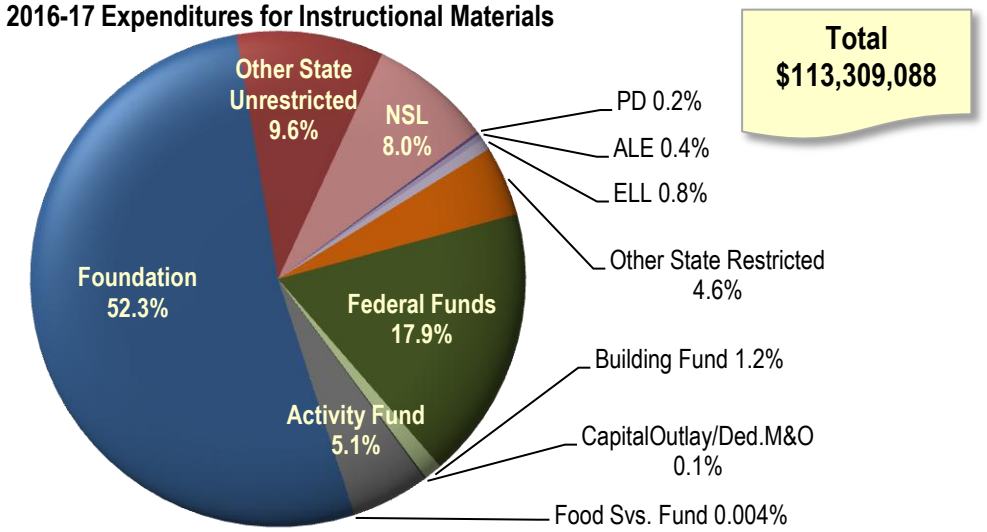


School districts spent about $113 per student from foundation funding on instructional materials and about $228 per student from all funding sources. On average, charter schools spent $557 per student from foundation funding, well above the matrix funding amount for instructional materials. However, two charter schools—both of which are virtual schools—had unusually high expenditures for instructional materials: more than $2,900 per student for one school and more than $2,500 for the other.

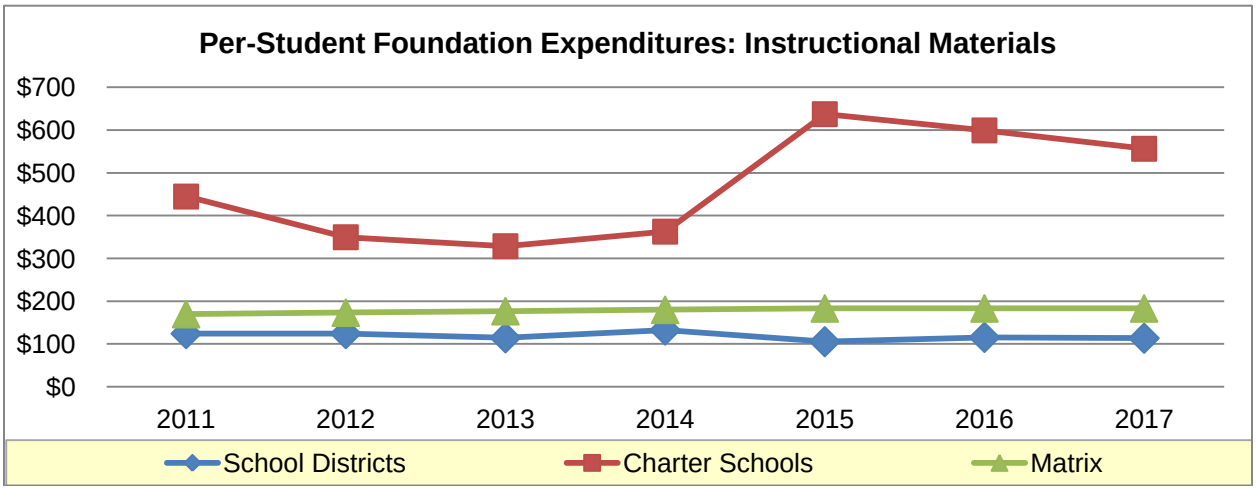
[25] Griffin, M., Arkansas Department of Education, May 7, 2018, email.

Districts differed very little in per-student foundation funding expenditures for instructional materials when grouped by size, but large districts spent 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. Considering all funding sources, high poverty districts spent nearly two times the amount that low poverty districts spent per student. Spending varied little based on student achievement groupings.

In addition to foundation funding, districts and charter schools receive a variety of other sources of funding they can use to purchase instructional materials. 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 52% of their total expenditures for instructional materials. Other sources of funds districts used include federal funds, other state unrestricted funds and state NSL funding.



The following graph shows the per-student expenditures for instructional materials from foundation funding between 2011 and 2017. While charter schools have always spent more foundation funding per student on instructional materials than traditional districts, there does not appear to be a single reason for the dramatic increase in per student spending among the charter schools in 2015. The issues appear to be specific to the individual charter schools.



STATE RANKING: EXPENDITURES

NCES provides data on each state's expenditures for instructional supplies and for textbooks specifically (classroom textbooks and library books). The most recent data available for all states are from 2014-15. According to the NCES data, Arkansas schools spent $401.89 per student on instructional supplies generally and $40.28 per student on textbooks specifically. (The enrollment and expenditure data used to calculate textbook expenditures per student include pre-K students and expenditures which have been excluded from the BLR's foundation funding analysis elsewhere in this report.)

	Instructional Supplies: Arkansas's Rank	**Textbooks*: Arkansas's Rank**
All States and Washington D.C. (51)	5th highest	32nd highest
SREB States (16)	2nd highest	12th highest
Surrounding States (7, including AR*)	2nd highest	6th highest

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

EXTRA DUTY FUNDS

There are many extracurricular activities in all school levels, including sports, clubs, debate teams, 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.

BACKGROUND: EXTRA DUTY FUNDS IN THE MATRIX

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."[26] 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

[26] Odden, A., Picus, L. O., & Goetz, M. (2006). Recalibrating *the Arkansas School Funding Structure.* Report prepared for Arkansas Joint Committee on Education, p. 45.

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:

2006 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 they believed were increasingly common, particularly STEM-related activities. For FY18 and FY19, the Education Committees recommended increasing the per-student funding level for extra duty by 1% each year. Act 743 of 2017 increased the per-student foundation funding rate to include the following amounts for extra duty:

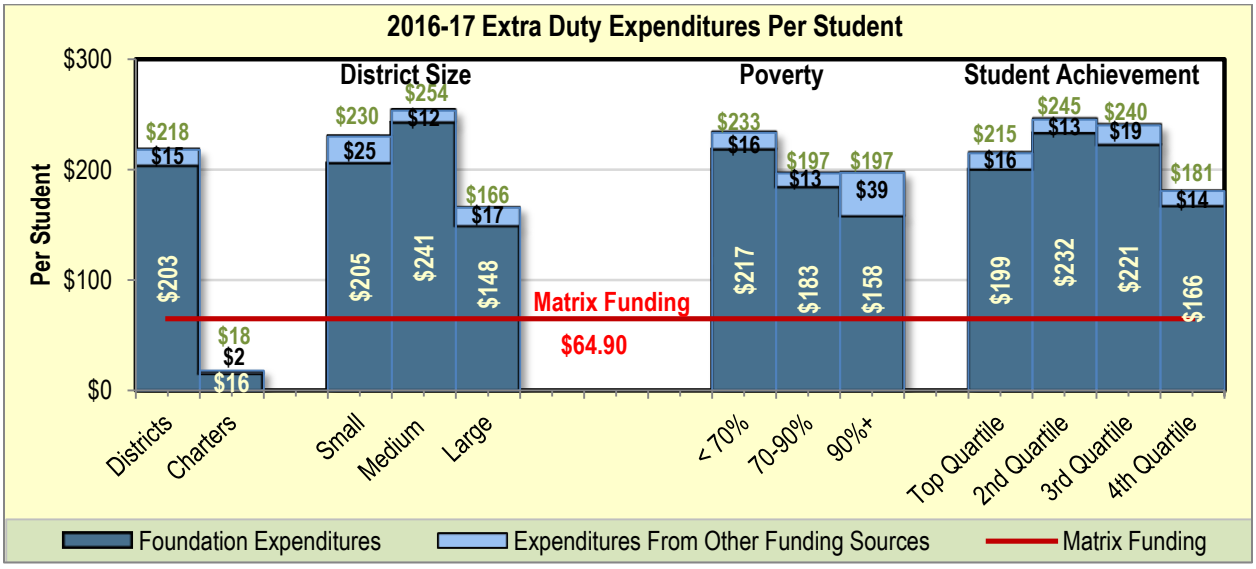
	2018	**2019**
Per-Student Rate	$65.50	$66.20
% Change	1%	1%

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2016-17, districts and charter schools spent $93.4 million for extra duty, or about $198 per student. That's more than three times the amount provided in the matrix. The vast majority of the expenditures in 2016-17 ($87.2 million, or about 93%) paid for athletic directors and other athletics staff. The remaining $6.2 million was spent on extra duty for interschool scholastic activities.

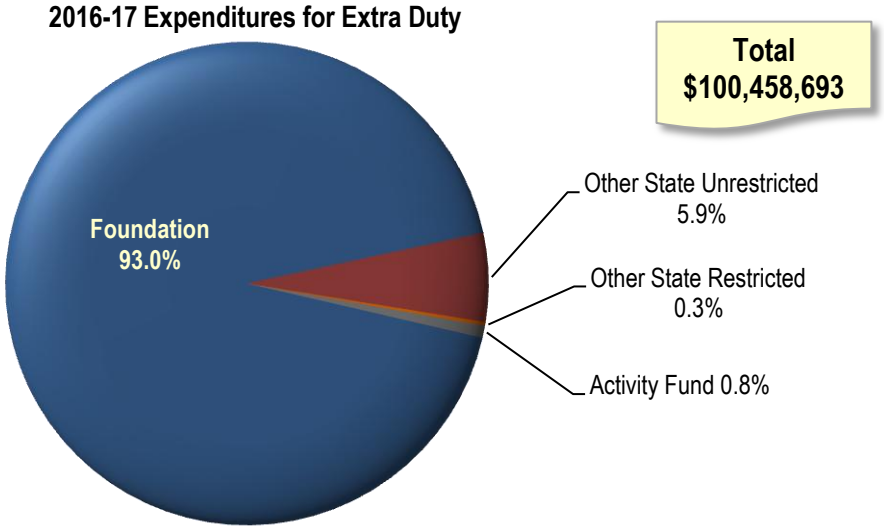
Extra Duty: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2015-16	$28,838,610	$90,757,686
2016-17	$30,673,648	$93,438,671

The following chart compares the per-student spending of traditional school districts and charter schools for extra duty. It also compares districts' per-student spending based on district size, poverty level and student achievement.

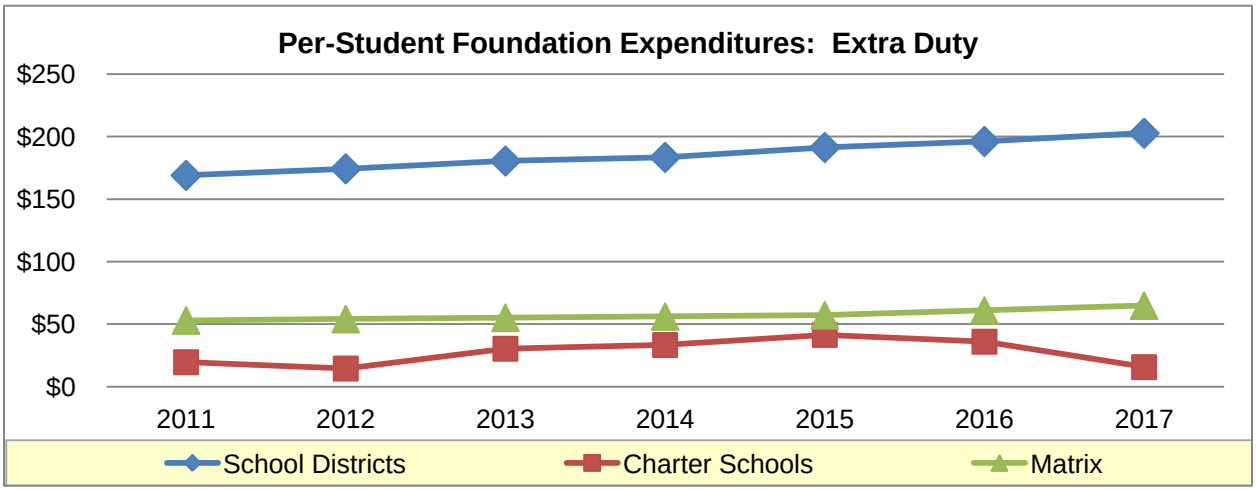


Traditional districts spent significantly more foundation funding per student on extra duty staffing than open-enrollment schools spent. Charter schools' limited spending is likely due to the fact that these schools have limited athletics programs. Just three of the charter schools had any athletic staff expenditures using foundation funding. Mid-sized districts spent more per student on extra duty than large or small districts. Districts also spent less foundation funding per student as their concentrations of poverty increased, although mid- and high poverty districts spent the same amount per student from all funding sources.

In addition to foundation funding, districts and charter schools receive a variety of other sources of funding they can use to pay for extra duty. 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.



The following graph shows the per-student expenditures for extra duty from foundation funding between 2011 and 2017. Districts have historically spent well above the foundation funding provided, which is typically related to higher per-pupil athletic expenditures.



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.

There are no statutory or regulatory requirements that schools employ supervisory aides. However, there are statutory limitations on districts' use of teachers for non-instructional supervisory duties. 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 (§ 6-17-111).

BACKGROUND: SUPERVISORY AIDES IN THE MATRIX

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 students. They 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 2016-17 matrix funding amount of $50 per student provided a salary of $25,000 (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. The supervisory aide funding amount in the matrix remained flat through FY19. Act 743 of 2017 set the per-student foundation funding rate to include the following amounts for supervisory aides:

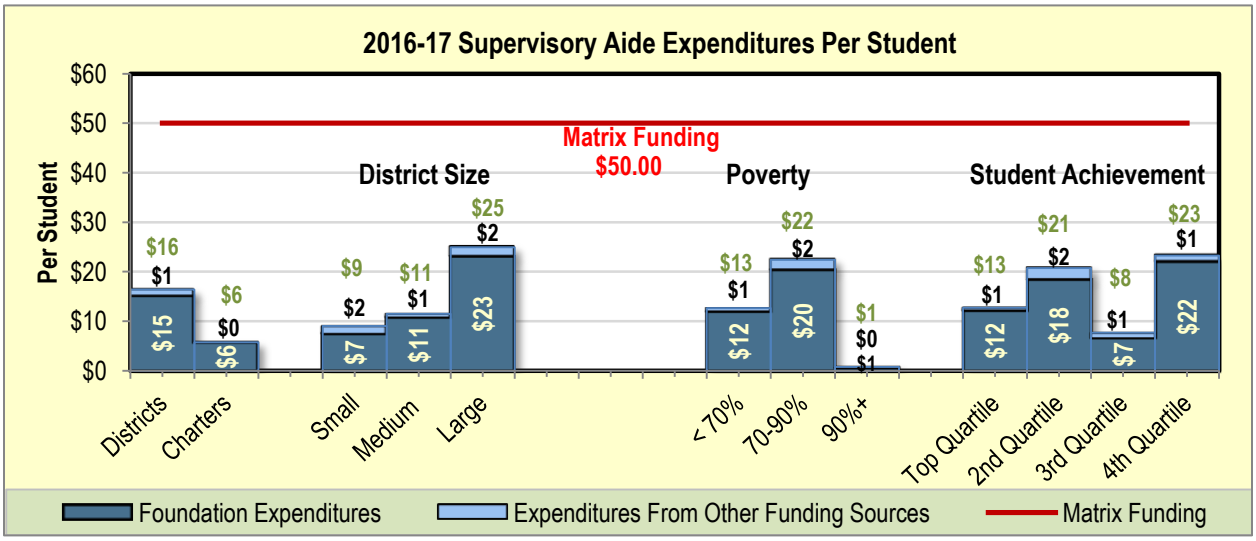
	2018	2019
Per-Student Rate	$50	$50
% Change	0%	0%

DISTRICT AND CHARTER SCHOOL EXPENDITURES

Districts and charter schools spent less than one third of the foundation funding they received for supervisory aides. Districts and charter schools collectively spent about $7 million in foundation funds on supervisory aides in 2016-17, or about $15 per student. Principals can limit the expense of supervisory aides by working within the 60 minutes of duty allowed under law and filling in with other classified personnel when needed.

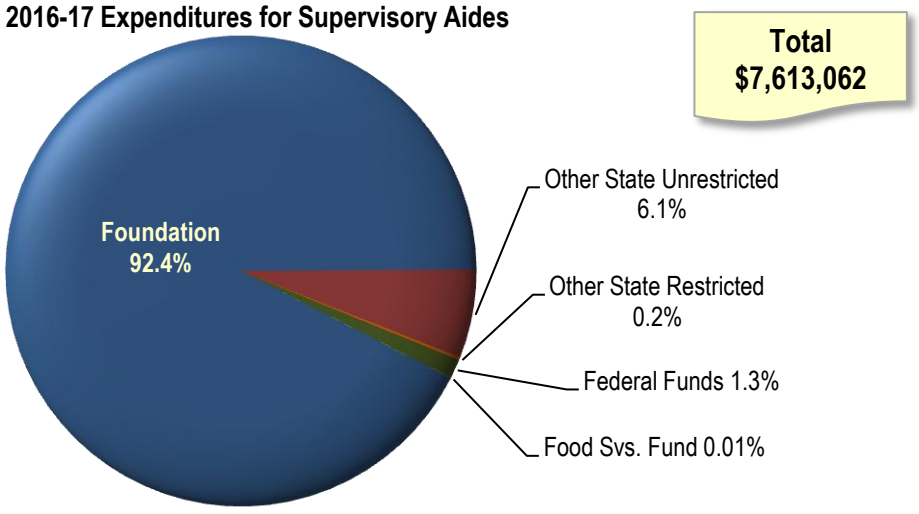
Supervisory Aides: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2015-16	$23,618,845	$6,443,152
2016-17	$23,631,470	$7,032,843

The following chart compares the per-student spending of traditional school districts and charter schools for supervisory aides. It also compares districts' per-student spending based on district size, poverty level and student achievement.

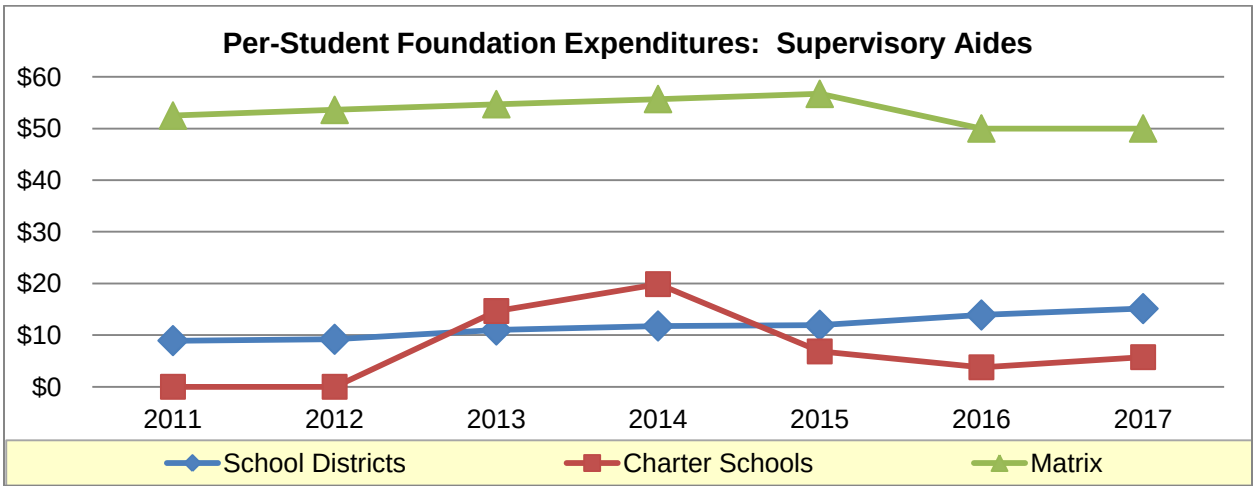


Large districts spent nearly twice as much foundation funding per student for supervisory aides as small districts. High-poverty districts spent just 75 cents per student for supervisory aides.

In addition to foundation funding, districts and charter schools receive a variety of other sources of funding they can use to pay for supervisory aides. Even when considering expenditures from all funding sources, districts and charter schools collectively spent just $15 per student. The majority of all expenditures for supervisory aides (92%) was spent using foundation funding.



The following graph shows the per-student expenditures for supervisory aides from foundation funding between 2011 and 2017. Both districts and charter schools consistently spent below the matrix funding level for supervisory aides.



SUBSTITUTES

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

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. These leave days result in the need for districts and charter schools to employ substitute teachers.

State law requires substitute teachers to have a high school diploma or an equivalency certificate (GED). State law prohibits substitute teachers from teaching a class more than 30 consecutive school days unless the substitute has a bachelor's degree or is licensed by the state to teach (§ 6-15-1004(e)). To employ degreed substitutes longer than 30 days, districts and charter schools must request a waiver. Districts appear to be increasingly relying on long-term substitutes to fill teacher vacancies. In 2015-16, districts employed long term substitutes to fill 411 individual positions. By 2016-17, that number increased to 661, according to information presented to the State Board of Education during its July 2017 meeting.[27]

	2015-16	2016-17
Long term subs for individual positions	411	661
Long term subs who began at the start of the school year	117	182
Long term subs who began at the start of the year and remained the sub for the entire year	54	152

State statute previously required districts with such waivers to be identified on the their annual school district report cards. Act 294 of 2017, however, eliminated that requirement. State law also previously exempted individuals substituting for non-degreed vocational technical teachers from all educational requirements, but Act 294 repealed that language, making them subject to the same educational attainment standards as other substitutes.

[27] Pfeffer, I., Arkansas Department of Education, Summary of Waivers, July 13, 2017, State Board of Education meeting

BACKGROUND: SUBSTITUTES IN THE MATRIX

In 2003 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."[28]

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. In the following years, the funding level increased annually as inflationary adjustments were applied to the foundation funding rate.

In their final report of the 2016 Adequacy Study, the Education Committees recommended increasing the per-student foundation funding rate for substitutes by 2% for FY18 and FY19. Act 743 of 2017 increased the per-student foundation funding rate to include the following amounts for substitutes:

	2018	2019
Per-Student Rate	$70.40	$71.80
% Change	2%	2%

DISTRICT AND CHARTER SCHOOL EXPENDITURES

Arkansas's 2016-17 substitute funding rate of $69 supported an average daily rate of pay of about $113, 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 pay a rate that is considerably below the amount supported in the matrix.

Superintendent 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?

Districts and charter schools pay a daily rate of $81.18 for certified teachers, $70.50 for degreed substitutes who are not certified, and $68.15 for substitutes with no degree. Four districts did not respond to this question.

	District/Charter Average*	Range
Certified teachers	$81.18	$55-$307.84
Substitutes with degrees but not certified	$70.50	$50-$120
Substitutes with no degree	$68.15	$50-$120

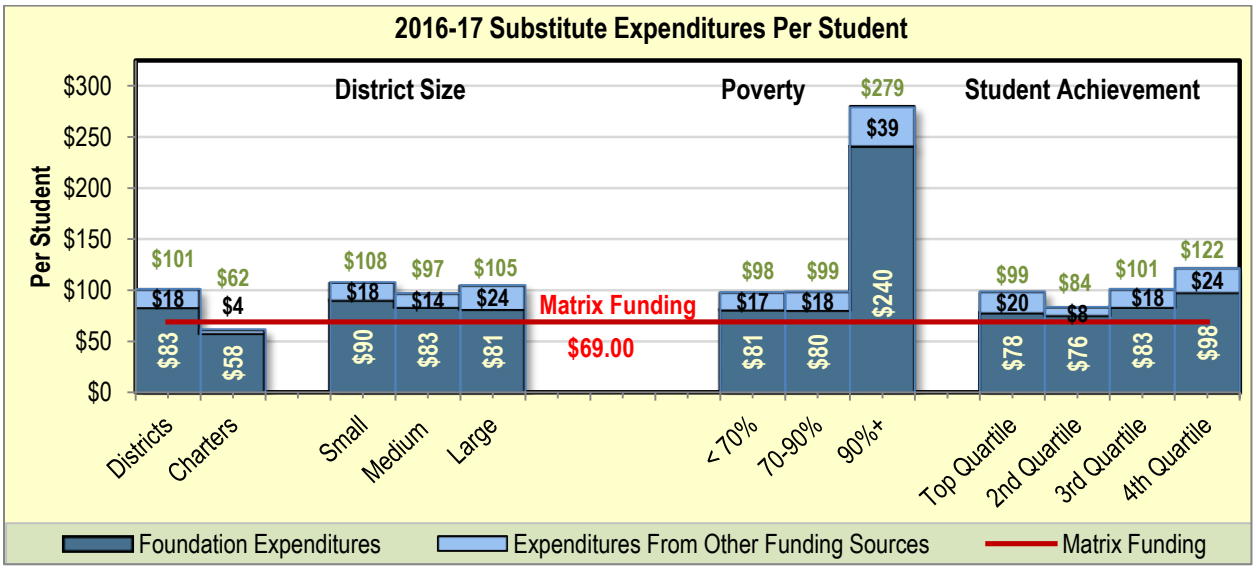
*Averages exclude districts when they entered 0, provided two rates, provided an hourly rate, or provided an annual salary. Calculations also excluded one district's daily pay for non certified substitutes without a degree because it far exceeded the pay of the district's pay for certified teachers.

[28] Odden, A., Picus, L. O., Fermanich (2003). *An Evidence-based Approach to School Finance Adequacy in Arkansas. Report* prepared for the Arkansas Joint Committee on Education Adequacy, p. 46, http://www.arkleg.state.ar.us/education/K12/AdequacyReportYears/2003%20Final%20Arkansas%20Report%2009_01_2003.pdf

In 2016-17 districts and charter schools spent more foundation funding on substitutes than they received for that purpose. Collectively, they spent $39 million from foundation funding, or about $83 per student. These expenditures are for substitute teachers only and do not include expenditures for substitutes for other types of staff. Additionally, due to the APSCN coding structure, these expenditures do not include any employee benefits spent when directly employing substitute teachers. Calculated at 22% of salaries paid, these benefits would add approximately $2 million to the expenditures listed below.

Substitutes: Foundation Funding and Expenditures		
	Funding	Expenditures
2015-16	$31,979,916	$38,751,214
2016-17	$32,611,429	$39,007,176

The following chart compares the per-student spending of traditional school districts and charter schools for substitute teachers. It also compares districts' per-student spending based on district size, poverty level and student achievement.



Districts spent about $83 per student on substitute teachers using foundation funding, or about $14 more per student than they receive through the matrix. Because districts' average daily rate of pay for substitutes is below the rate provided in the matrix ($113, plus benefits), their higher overall spending may districts reflect a need to hire substitutes for more than 10 days per teacher or 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 63% more per student than charter schools.

When grouped by district size, districts differed only minimally in the levels of foundation funding spent on substitutes. 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. While data on teacher absences specifically are not available,[29] ADE does collect data on absences of all certified staff. In 2016-17, high poverty districts averaged 12.5 absences per certified staff (including absences due to professional development and other school business), compared with

[29] ADE will be collecting information on employee absences by position in 2018-19. See page 55 of the 2018-19 Statewide Information System Handbook.

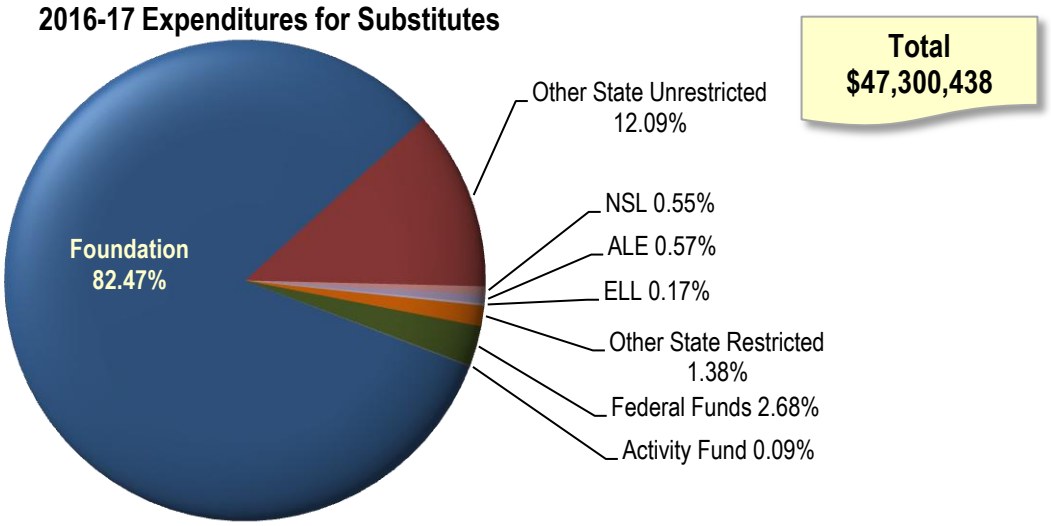
11.8 absences for the other districts.[30] (Districts that reported zero absences for any staff were excluded from this analysis.) The superintendent of one district with particularly high substitute expenditures noted that high poverty districts have a particular challenge with unfilled positions. "There is a real challenge in finding teachers that meet licensure requirements or AQT [Arkansas Qualified Teacher] (a degree or substantial coursework in a subject area)," the superintendent explained in an email. "Thus, subs are used to fill the classroom while other solutions are sought."[31] The superintendent also noted that working with a high-need student population can be "emotionally challenging," contributing to high staff turnover. "This is a support problem," he said. "We as a district (and others like us) have to develop and implement better support plans for staff. We hire a lot of 1240 Waiver staff [staff hired under the waiver authority granted under Act 1240 of 2015]. They have no experience in the classroom no experience in developing lessons. Thus, we overwhelm them with our need for them to come into the [role] and do everything that a developed teacher is asked to do."

According to an analysis of ADE data on long-term substitutes, high poverty districts relied more heavily on long term subs than other districts in 2016-17.

	Long-Term Subs as % of Teachers
Low Poverty (0%-<70%)	0.3%
Mid-level Poverty (70%-<90%)	0.6%
High Poverty (90%+)	7.5%

Data Source: ADE Data Center, Myschoolinfo.arkansas.gov, District Statewide Reports, Approved Long-Term Substitute and Total Teachers

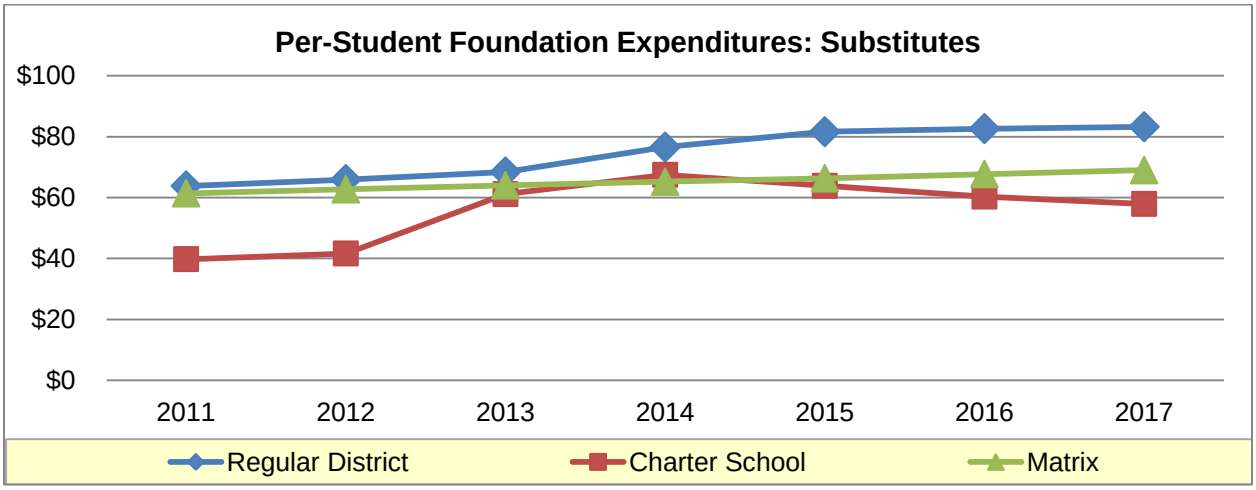
In addition to foundation funding, districts and charter schools receive a variety of other sources of funding they can use to pay for substitutes. Districts and charter schools used foundation funding to cover about 82% of their expenditures for substitute teachers.



The following graph shows the per-student expenditures for substitutes from foundation funding between 2011 and 2017. Districts' per-student expenditures have been increasing faster than the matrix funding in part due to a shift in the way districts are paying for substitute teachers. In 2011, districts primarily hired substitutes as employees entitled to some benefits, but by 2017, districts primarily contracted with employment agencies to hire substitutes (or otherwise contracted for substitutes as a purchased service).

[30] http://www.apscn.org/reports/hld/districtleavereports/hld/FY17CertifiedEmployeesAnnualLeaveReport.xls and https://adedata.arkansas.gov/statewide/Districts/CertifiedTeacher.aspx and https://adedata.arkansas.gov/statewide/Districts/CertifiedStaff.aspx

[31] Wilde, R., Earle School District, May 7, 2018, email.



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. These non-matrix items include a variety of expenditures for resources 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.

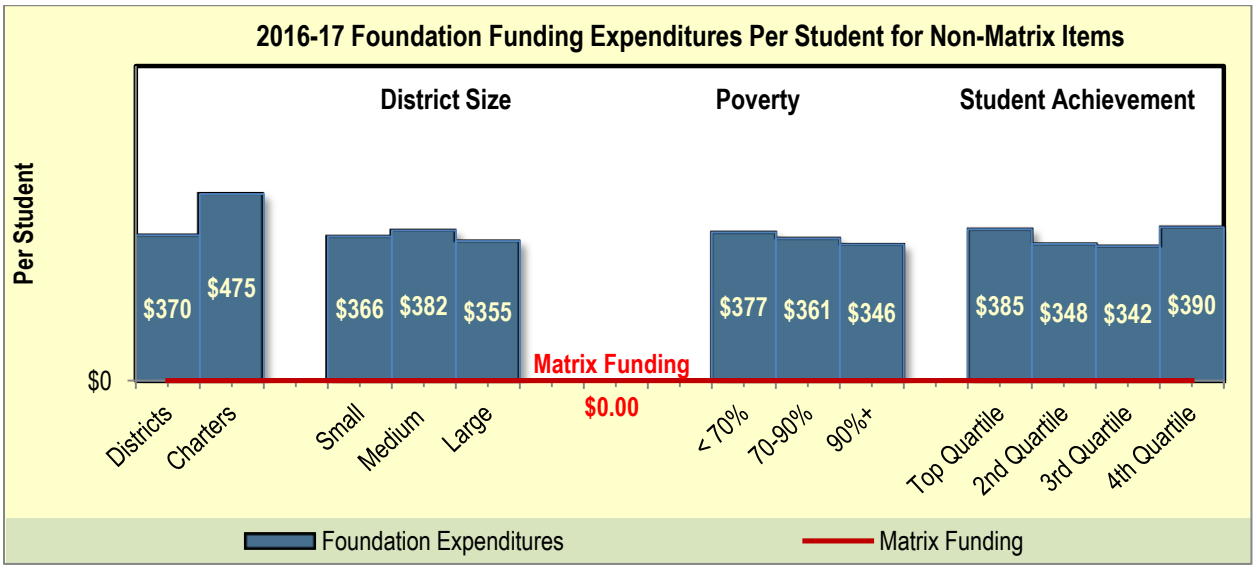
Description	2016-17 Expenditures From Foundation Funds	2016-17 Expenditures Per Student From Foundation Funds
Athletic supplies and transportation	$22,920,596	$48.50
Activity supplies and transportation	$2,221,740	$4.70
Supplies and objects in instruction and instructional support not otherwise classified as instructional materials, technology, etc.	$31,259,208	$66.14
Selected instructional program coordinators and other instructional personnel for programs outside regular school programs, including preschool, summer school, homebound instruction	$12,947,361	$27.39
Classified guidance services	$3,839,443	$8.12
Instructional aides	$61,953,273	$131.08
Classified library support	$3,967,603	$8.39
Supplies and materials for counselors, nurses, and other student support services	$3,708,652	$7.85
Pre-kindergarten programs	$706,754	$1.50
Food service	$192,541	$0.41
Community outreach	$59,721	$0.13
Other financing uses such as bonded indebtedness not accounted for in the debt service fund and indirect costs	$789,062	$1.67
Non-technology related facilities construction and site improvement	$16,677,999	$35.29
Other miscellaneous items	$14,995,821	$31.73
Total other non-matrix items	**$176,239,773**	**$372.90**

DISTRICT AND CHARTER SCHOOL EXPENDITURES

In 2016-17, districts and charter schools spent about $176.2 million of their foundation funding dollars on items not specifically identified in the matrix. This equates to about $373 per student.

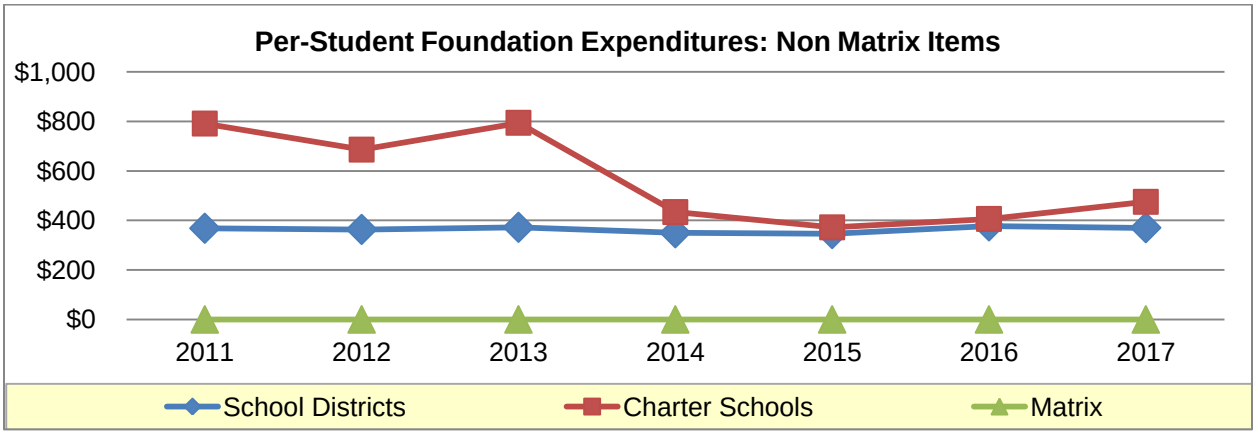
Other Non-Matrix Items: Foundation Funding and Expenditures		
	Funding	**Expenditures**
2015-16	$0	$178,726,695
2016-17	$0	$176,239,773

The following chart compares the per-student spending of foundation funding for resources that were not included in the matrix. It also compares districts' per-student spending based on district size, poverty level and student achievement.



Charter schools spent more per student for non-matrix items than traditional districts. Districts' spending patterns for non-matrix items differed minimally 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.

The following graph shows the per-student expenditures for non-matrix items from foundation funding between 2011 and 2017. The decrease in charter schools' per-student spending between 2013 and 2014 is mostly due to a drop off in debt service spending by six charter schools. The drop in charter school per-student expenditures that year largely resulted from the schools' shifting the accounts from which they were making debt service payments (from the accounts they use to hold foundation funds to other accounts), making it appear that expenditures of foundation funds decreased. Charter schools' overall debt service payments dropped by only about $370,000, or about 15% of their 2013 expenditures.



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."[32] 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.

When the Education Committees rehired Picus Odden and Associates in 2014, the consultants continued to note that evidence "does not support the use of instructional aides for improving student performance," but they noted that the research does indicate instructional aides can have an impact as tutors if they are properly selected and trained according to specific educational criteria. The consultants suggested that "districts may want to consider a possible use of instructional aides that is supported by research."[33] The consultants recommended increasing the number of *supervisory* aides to 2.1 per 500 students, but because the consultants' discussion of instructional aides appears in the report's section on supervisory aides, it appears they were suggesting that some of the supervisory aides could serve as instructional aides. Additionally, Picus Odden and Associates recommended adding funding to the matrix to support aides for special education. They recommended one aide for every 150 students, or about 3.3 aides for a school of 500 students. The Education Committees in 2014, however, did not add any instructional aides to the matrix formula.

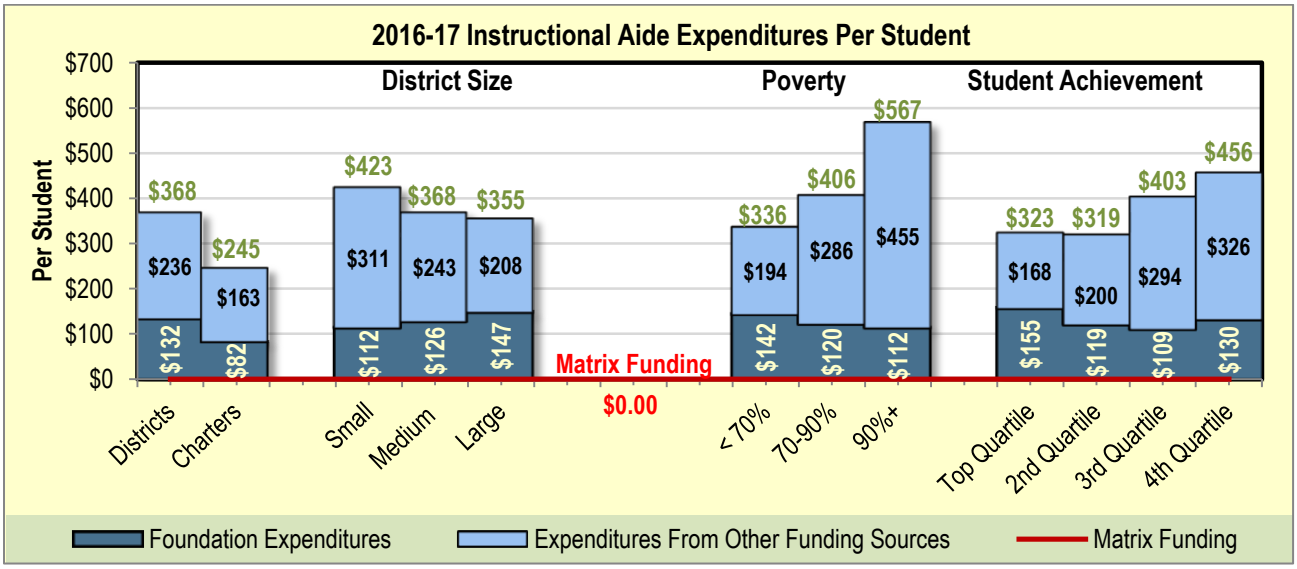
DISTRICT AND CHARTER SCHOOL EXPENDITURES FOR INSTRUCTIONAL AIDES

In 2016-17, districts and charter schools spent nearly $62 million on instructional aides from foundation funds, or about $131 per student. Of that amount, about 44% was spent on special education instructional aides. Districts may be required to employ some of these aides as a provision of students' individualized education programs (IEP).

	Instructional Aides: Foundation Expenditures
2015-16	$62,507,124
2016-17	$61,953,273

[32] Odden, A., Picus, L. O., Fermanich (2003). *An Evidence-based Approach to School Finance Adequacy in Arkansas. Report* prepared for the Arkansas Joint Committee on Education Adequacy, p. 40.
[33] Picus Odden & Associates (2014). Desk Audit of the Arkansas School Funding Matrix and Developing an Understanding of the Potential Costs of Broadband Access For All Schools, Sept. 5, 2014, p. 39.

The following chart compares the per-student spending of traditional school districts and charter schools for instructional aides. It also compares districts' per-student spending based on district size, poverty level and student achievement.



When comparing districts based on their per-student expenditures of foundation funding, there appears to be little difference among the different district groups. Traditional districts did, however, spend more foundation funding per student on instructional aides than charter schools. Small districts and high poverty districts spent less foundation funding per student on instructional aides than larger and more affluent districts. However, when looking at total spending for instructional aides, small districts and high poverty districts spent well above larger and more affluent districts.

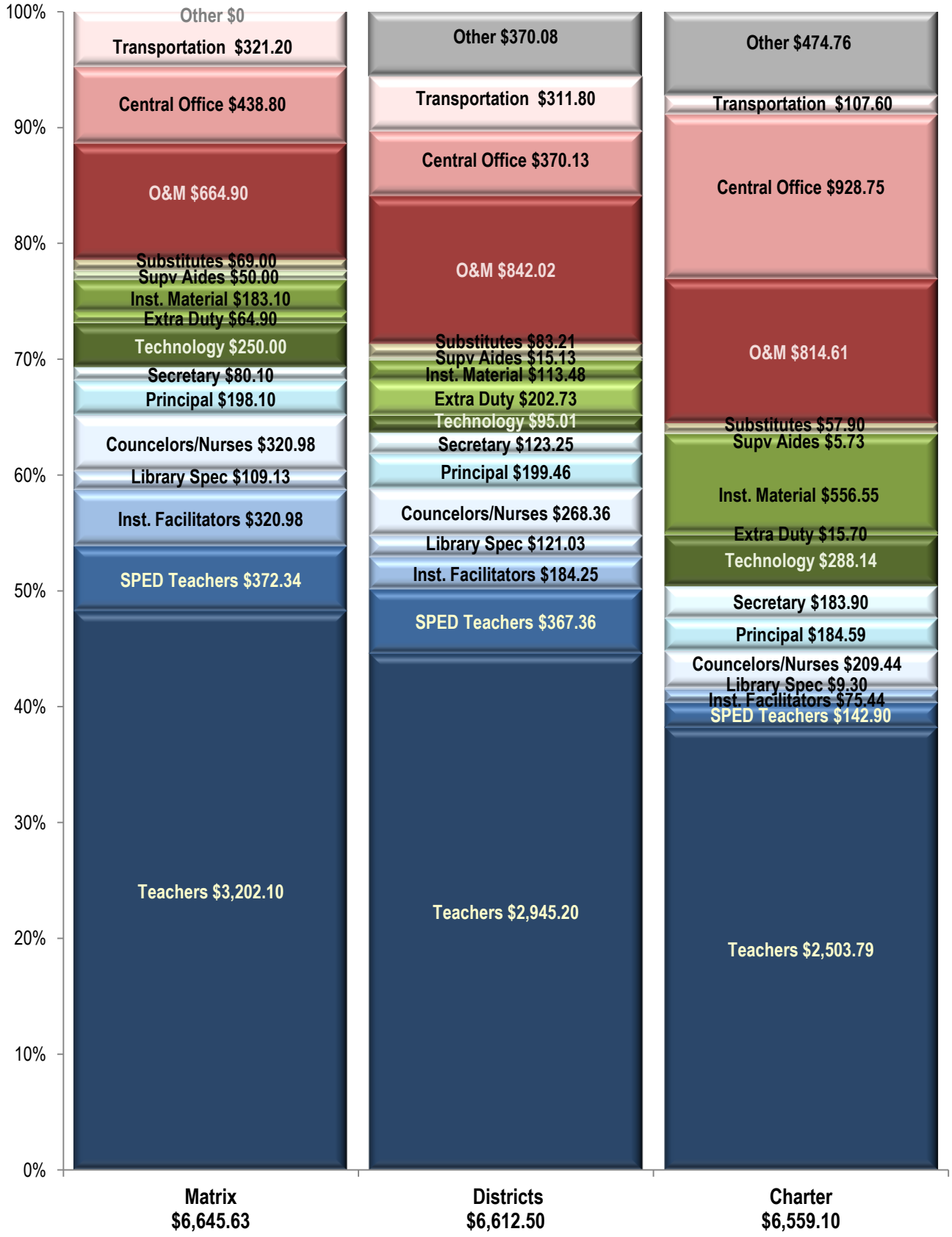
DISTRICT COMPARISONS

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	School Districts	Charter Schools
Classroom Teachers	$3,202.10	$2,945.20	$2,503.79
Special Education Teachers	$372.34	$367.36	$142.90
Instructional Facilitators	$320.98	$184.25	$75.44
Library Media Specialists	$109.13	$121.03	$9.30
Counselors and Nurses	$320.98	$268.36	$209.44
Principal	$198.10	$199.46	$184.59
School-level Secretary	$80.10	$123.25	$183.90
Technology	$250.00	$95.01	$288.14
Instructional Materials	$183.10	$113.48	$556.55
Extra Duty Funds	$64.90	$202.73	$15.70
Supervisory Aides	$50.00	$15.13	$5.73
Substitutes	$69.00	$83.21	$57.90
Operations & Maintenance	$664.90	$842.02	$814.61
Central Office	$438.80	$370.13	$928.75
Transportation	$321.20	$311.80	$107.60
Other Non-Matrix Items	$0	$370.08	$474.76
TOTAL	**$6,646**		

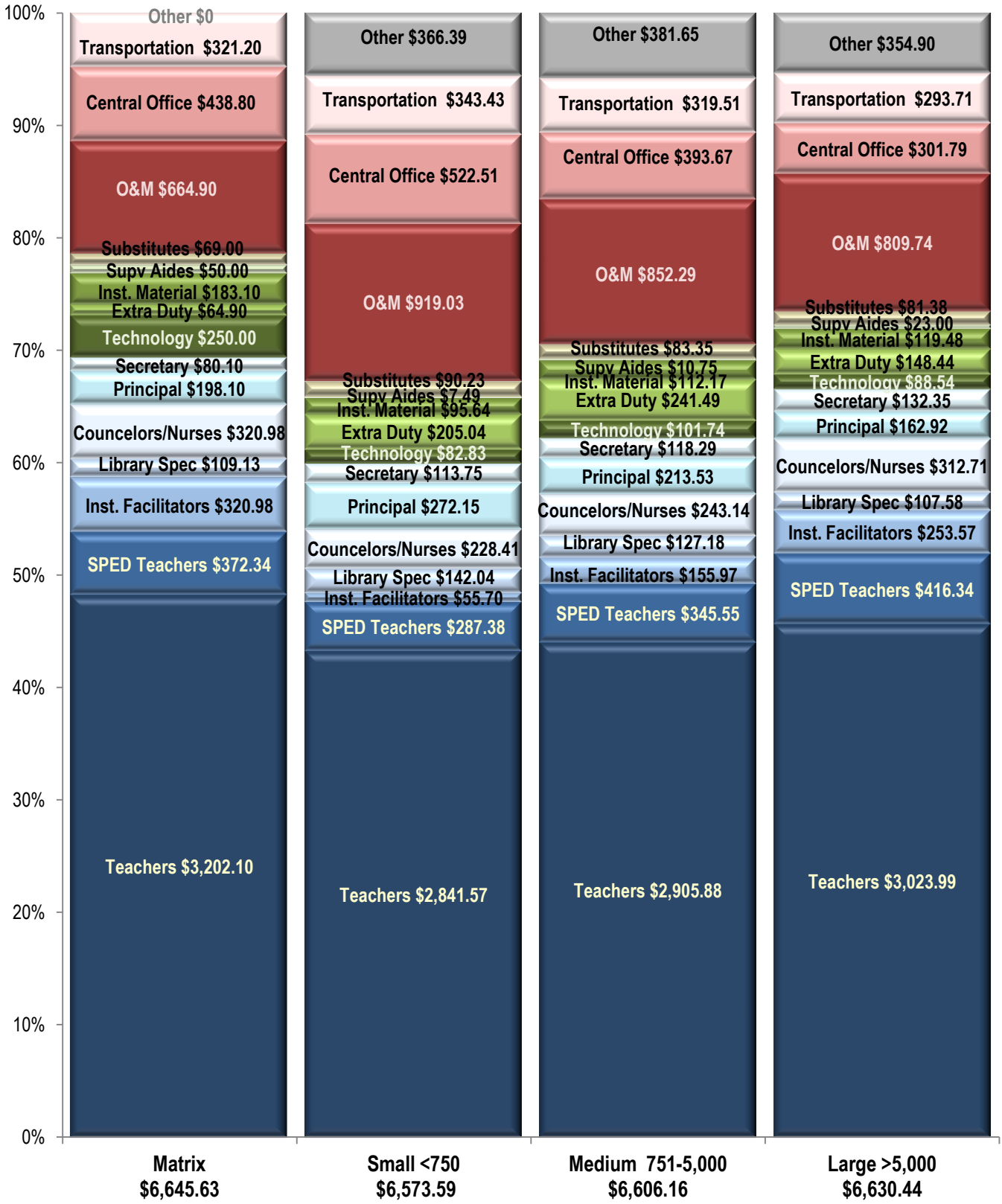
DISTRICT AND OPEN-ENROLLMENT CHARTER SCHOOLS CHART



DISTRICT SIZE

	Matrix	Small (750 or less)	Medium (751 to 5000)	Large (over 5000)
Classroom Teachers	$3,202.10	$2,841.57	$2,905.88	$3,023.99
Special Education Teachers	$372.34	$287.38	$345.55	$416.34
Instructional Facilitators	$320.98	$55.70	$155.97	$253.57
Library Media Specialists	$109.13	$142.04	$127.18	$107.58
Counselors and Nurses	$320.98	$228.41	$243.14	$312.71
Principal	$198.10	$272.15	$213.53	$162.92
School-level Secretary	$80.10	$113.75	$118.29	$132.35
Technology	$250.00	$82.83	$101.74	$88.54
Instructional Materials	$183.10	95.64	112.17	119.48
Extra Duty Funds	$64.90	$205.04	$241.49	$148.44
Supervisory Aides	$50.00	$7.49	$10.75	$23.00
Substitutes	$69.00	$90.23	$83.35	$81.38
Operations & Maintenance	$664.90	$919.03	$852.29	$809.74
Central Office	$438.80	$522.51	$393.67	$301.79
Transportation	$321.20	$343.43	$319.51	$293.71
Other Non-Matrix Items	$0	$366.39	$381.65	$354.90
TOTAL	**$6,646**			

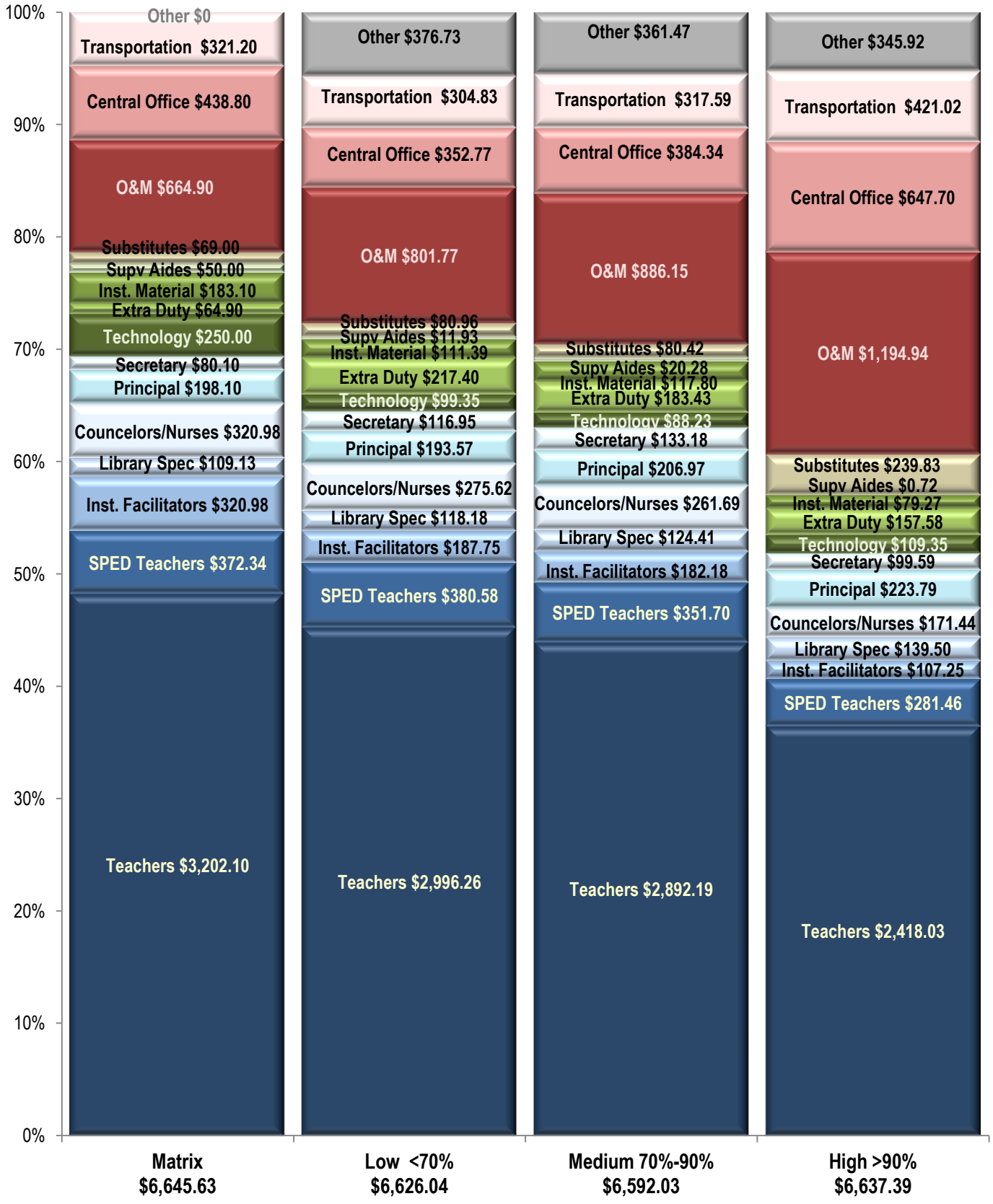
DISTRICT SIZE CHART



POVERTY LEVEL

	Matrix	Low (< 70%)	Medium (70%-90%)	High (90% or more)
Classroom Teachers	$3,202.10	$2,996.26	$2,892.19	$2,418.03
Special Education Teachers	$372.34	380.58	351.70	281.46
Instructional Facilitators	$320.98	187.75	182.18	107.25
Library Media Specialists	$109.13	118.18	124.41	139.50
Counselors and Nurses	$320.98	275.62	261.69	171.44
Principal	$198.10	193.57	206.97	223.79
School-level Secretary	$80.10	116.95	133.18	99.59
Technology	$250.00	$99.35	$88.23	$109.35
Instructional Materials	$183.10	$111.39	$117.80	$79.27
Extra Duty Funds	$64.90	$217.40	$183.43	$157.58
Supervisory Aides	$50.00	$11.93	$20.28	$0.72
Substitutes	$69.00	$80.96	$80.42	$239.83
Operations & Maintenance	$664.90	$801.77	$886.15	$1,194.94
Central Office	$438.80	$352.77	$384.34	$647.70
Transportation	$321.20	$304.83	$317.59	$421.02
Other Non-Matrix Items	$0	$376.73	$361.47	$345.92
TOTAL	**$6,646**			

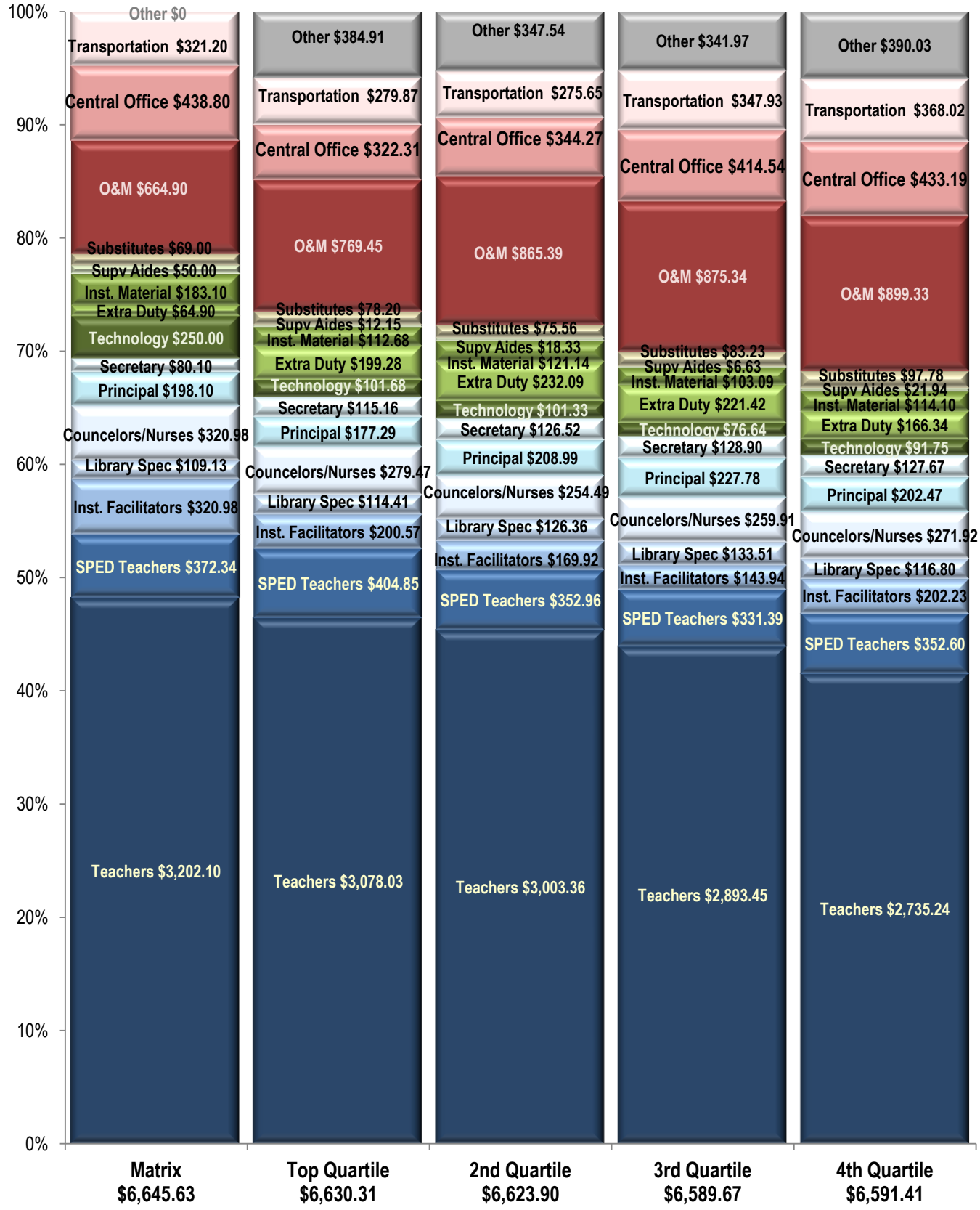
POVERTY LEVEL CHART



STUDENT ACHIEVEMENT

	Matrix	Top Quartile	2nd Quartile	3rd Quartile	4th Quartile
Classroom Teachers	$3,202.10	$3,078.03	$3,003.36	$2,893.45	$2,735.24
Special Education Teachers	$372.34	$404.85	$352.96	$331.39	$352.60
Instructional Facilitators	$320.98	$200.57	$169.92	$143.94	$202.23
Library Media Specialists	$109.13	$114.41	$126.36	$133.51	$116.80
Counselors and Nurses	$320.98	$279.47	$254.49	$259.91	$271.92
Principal	$198.10	$177.29	$208.99	$227.78	$202.47
School-level Secretary	$80.10	$115.16	$126.52	$128.90	$127.67
Technology	$250.00	$101.68	$101.33	$76.64	$91.75
Instructional Materials	$183.10	$112.68	$121.14	$103.09	$114.10
Extra Duty Funds	$64.90	$199.28	$232.09	$221.42	$166.34
Supervisory Aides	$50.00	$12.15	$18.33	$6.63	$21.94
Substitutes	$69.00	$78.20	$75.56	$83.23	$97.78
Operations & Maintenance	$664.90	$769.45	$865.39	$875.34	$899.33
Central Office	$438.80	$322.31	$344.27	$414.54	$433.19
Transportation	$321.20	$279.87	$275.65	$347.93	$368.02
Other Non-Matrix Items	$0	$384.91	$347.54	$341.97	$390.03
TOTAL	**$6,646**				

STUDENT ACHIEVEMENT CHART

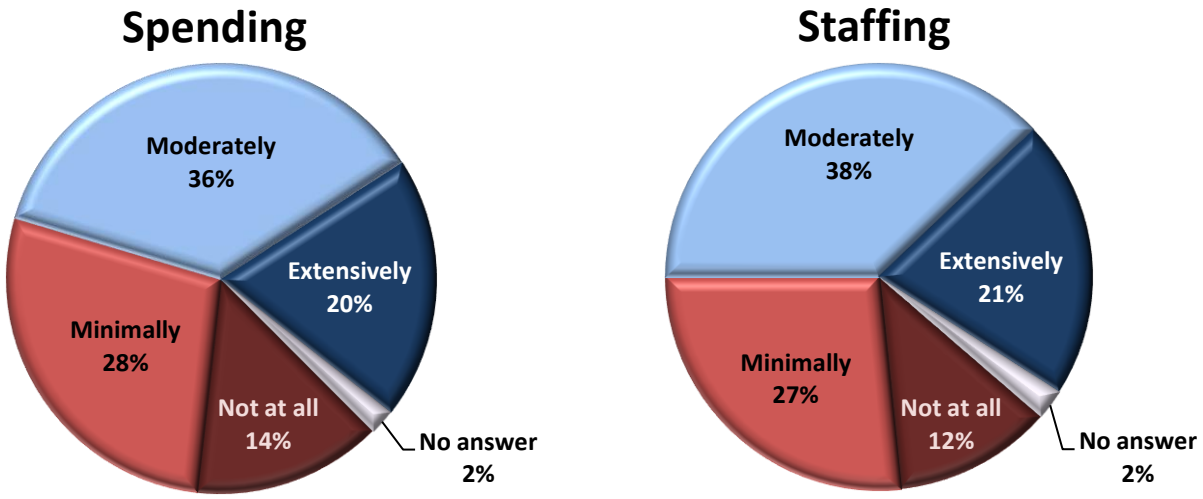


DISTRICT SURVEY RESPONSES

To gauge administrators' assessment of how well the current matrix is meeting district's needs, the BLR surveyed superintendents about how they use the matrix and where they believe funding is needed most.

Superintendent Survey Question: The matrix is the formula the General Assembly uses to determine the per-student foundation funding rate. To what extent do you use the matrix to guide your district's spending and staffing levels? 1. Not at all 2. Minimally 3. Moderately 4 Extensively

About 56% of superintendents said they use the matrix "extensively" or "moderately" to guide spending and 59% said they use it "extensively" or "moderately" to guide their staffing decisions. About 14% and 12% said they do not use it at all for spending or staffing, respectively.



The BLR survey included a comment section that allowed superintendents to provide any additional information or clarification they felt necessary. Several superintendents used this space to comment on the matrix and foundation funding. These comments are provided below.

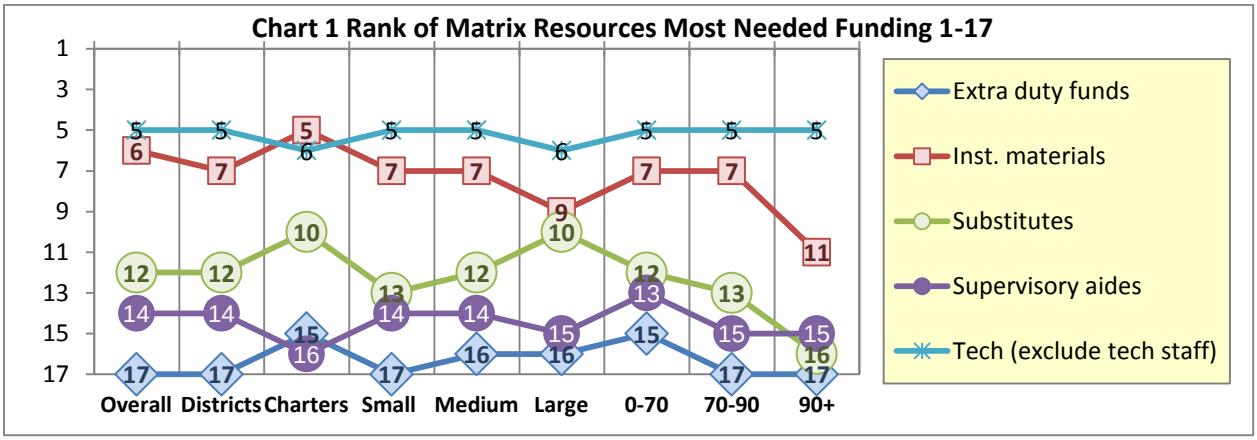
- 'The Matrix' is a multiplier created around a fictional school for the purposes of determining funding equity. It was never intended to be used by the General Assembly in this way nor was it intended to be used by the General Assembly to target specific areas of the matrix nor was it intended to be used to help guide a district's spending/staffing levels. In the same way that children have varying needs, schools also have different needs that must be met in order to educate the children in their district. It boggles my mind that we are still having these conversations. I am told my legislators that 'throwing money' at public education isn't the answer. However, when I look at the schools receiving the bulk of the award money for being top performers in the state it is primarily the schools with the money to hire the best teachers and support staff, purchase the best curricular programs, purchase the best technology, provide the best professional development, and best meet the needs of their students. Meanwhile in other parts of the state, schools are running on essentially the same budget for the past 3-4 years while the general assembly plays games with the available funding in an attempt to divert money to private charters which will only continue to further separate the haves from the have-nots.

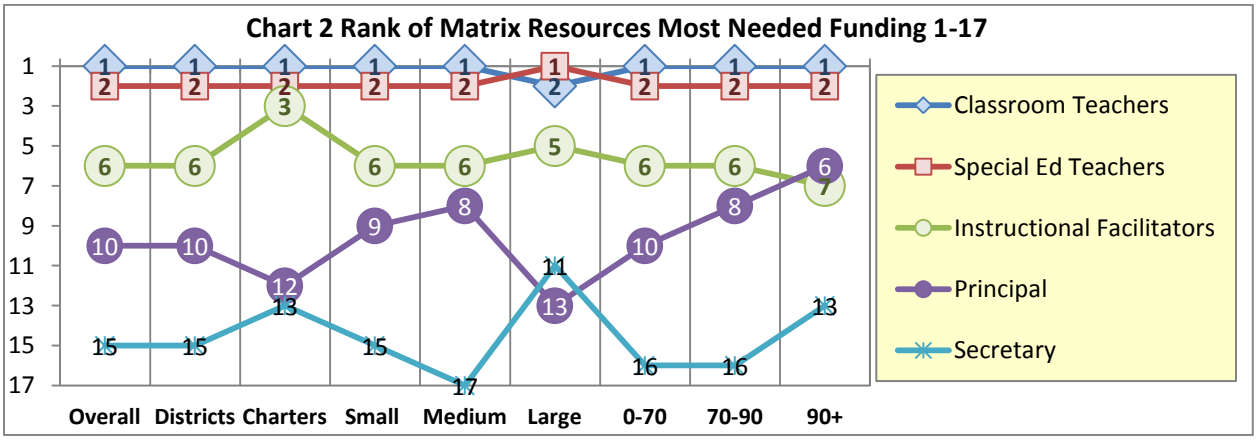
- I hope those who look at this information will consider the matrix is a revenue model for a reason. If a school district meets all state standards with the revenue given in the matrix formula then I would appreciate it if the local school board would be allowed to spend the money on the present needs of our school and students. They will fluctuate from year to year like many of our budgets do at home. Some years the engine will blow up in both cars. That year we eat out less at home. We have to make similar adjustments with a school budget. We need the flexibility to take care of our students needs.
- The most significant issue facing our district is declining enrollment and the ability to remain fiscally sound with the inadequate funding increase of 1%.

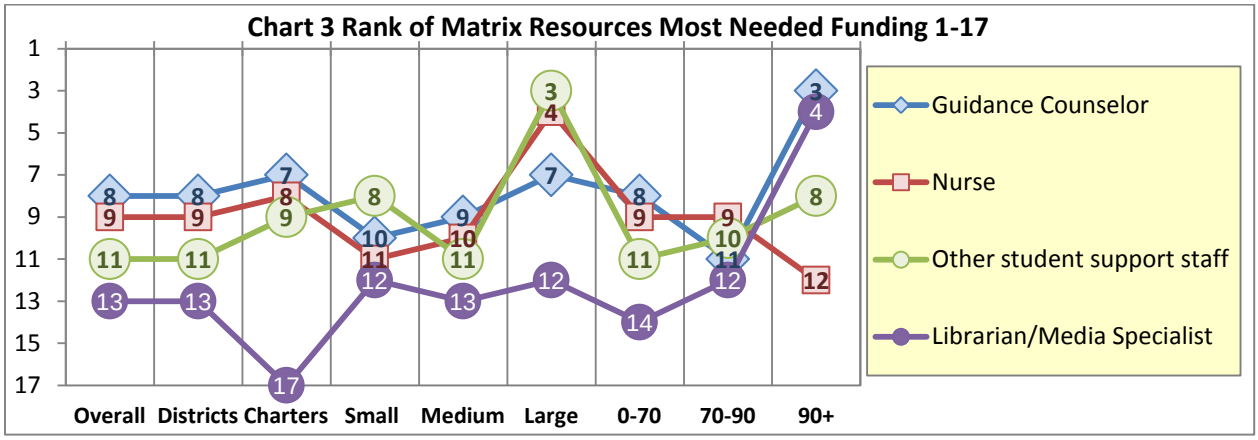
Superintendents were also asked to rank the components of the matrix from those resources for which more funding is most needed to the resources where more funding is least needed.

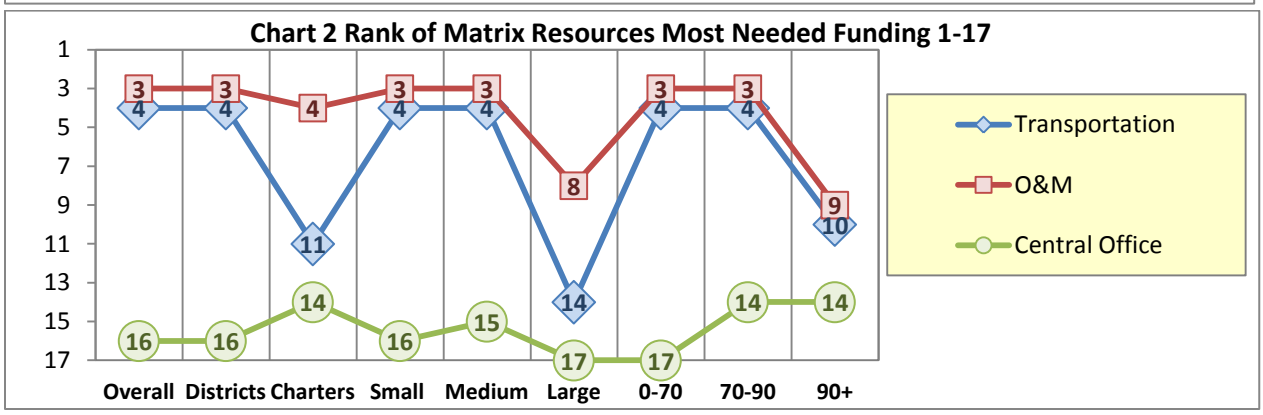
Superintendent Survey Question: Rank the resources in the matrix in terms of areas where your district most needs additional funding (of any amount), with 1=MOST in need of additional funding and 17=LEAST in need of additional funding.

The following charts provide the results from superintendents' ranking. The first chart provides the ranking for the matrix components described in this report, while the three other charts provide the superintendent rankings that were provided in the two previous Resource Allocation reports. Of the school-level resources described in this report, superintendents generally ranked technology and instructional materials as just above a middle-level priority. Supervisory aides and extra duty funds tended to be a low funding priority, while superintendents tended to rank substitutes a little lower than a mid-level priority.



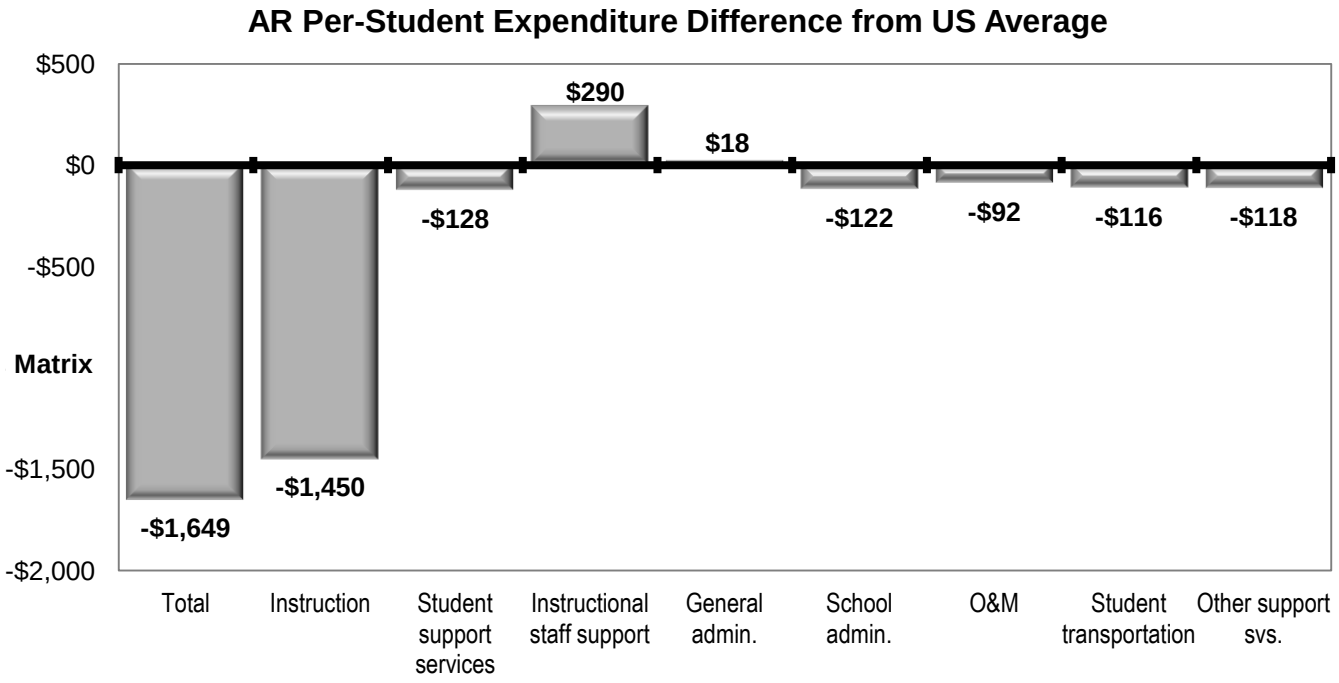






NATIONAL COMPARISON

The following bar chart shows how Arkansas's per-student spending compares with the national average. The definitions of each expenditure area are provided below the chart.



Instruction expenditures for "activities related to the interaction between teachers and students," including "salaries and benefits for teachers and teacher aides, textbooks, supplies, and purchased services. These expenditures also include expenditures relating to extracurricular and cocurricular activities."

Student support services expenditures for services including "attendance and social work, guidance, health, psychological services, speech pathology, audiology."

Instructional staff support expenditures for "activities that include instructional staff training, educational media (library and audiovisual), and other instructional staff support services."

General administration expenditures for the "board of education and superintendent's office for the administration of LEAs, including salaries and benefits for the superintendent, the school board, and their staff."

School administration expenditures for the "office of the principal, full-time department chairpersons, and graduation expenses."

Operation and maintenance expenditures are those for "the operation of buildings, the care and upkeep of grounds and equipment, vehicle operations (other than student transportation) and maintenance, and security."

Student transportation services expenditures are those for vehicle operation, monitoring, and vehicle servicing and maintenance associated with transportation services. Expenditures for purchasing buses are reported under equipment.

Other support services expenditures are those "for business support services (activities concerned with the fiscal operation of the LEA), central support services (activities, other than general administration, which support each of the other instructional and support services programs, including planning, research, development, evaluation, information, and data processing services)."

CONCLUSION

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. The foundation funding formula, known as the matrix, is designed to determine the amount of money needed to cover the necessary components of an adequate education. However, foundation funding is considered unrestricted revenue, meaning districts and charter schools can spend this money in whatever way best fits their needs. Districts and charter schools are not required to mirror their spending patterns on the funding levels in the matrix formula. This report and two previous reports described the amount of foundation funding provided to districts and charter schools for each component of the matrix and the extent to which the funding met districts' and charter schools' needs as measured by their expenditures.

It is important to remember that while foundation funding is a major source of revenue for school districts, it makes up only about 56% of districts' total funding (55% for traditional districts and 66% for open enrollment charter schools). Because school districts, on average, receive 44% of their funding from other sources, they have the option of using other revenues to purchase the resources funded in the matrix.

Districts' actual foundation funding expenditures in 2016-17 tracked fairly closely with the intent of the matrix in some areas and less well in others. Average per-student spending in three areas closely matched the matrix amounts: special education teachers, principals, and transportation.

Districts generally **spent less foundation funding** than they received for **classroom teachers, instructional facilitators** (including assistant principals and technology assistants), **school nurses, student support services, technology, supervisory aides**, and **central office**. 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 (O&M)**. The two areas in which districts spent the most foundation funding above what the matrix provided were O&M and extra duty funds.

Most of the school-level staffing in the 2016-17 matrix was based on a base salary of $51,093. However, in practice some types of school-level staff are paid an average salary above that amount, while others are paid less. Districts paid school **nurses** about $15,500 **less than the salary funded in the matrix in 2016-17**. Actual salaries for **classroom teachers** and **special education teachers** were also under the salary provided in the matrix by about $3,100 and $1,800, respectively. Actual average salaries **for assistant principals** and **instructional facilitators** were **well above the funded level**—$22,800 and $10,250 more than what the matrix provided. Actual salaries for **guidance counselors** and **library media specialists** also exceeded the salaries funded in the matrix—by $6,250 and $2,900, respectively. The matrix funded principals in 2014-15 with a base salary of $79,631, while. the actual average salary of **principals** was about $2,000 higher than that amount.

Charter schools spent less foundation funding than they were provided for **every school staff** component except school secretaries, where they spent 2.3 times more than the matrix amount. Charter schools also spent less than the matrix provided 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 and assistant principals
- Counselors
- Student support services

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

- Librarians
- Principals
- Extra duty
- 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
- Instructional facilitators and assistant principals
- Counselors
- Instructional materials
- Extra duty funds

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

- Principals
- Substitutes
- O&M
- Central office
- Transportation

This report also compared Arkansas's staffing and expenditures to that of other states in areas where reliable data were available. Nationally Arkansas **ranked high (top 10)** in the **staffing levels for librarians, student support services (health services, speech pathology, etc.), and district clerical staff**. The state ranked between 11th and 20th in the number of school administrative support, guidance counselors, teachers, and between 25th and 35th in the number of school administrators, district administrators and library support staff.

In terms of per-student expenditures, Arkansas **ranked in the top 10 nationally** in its **spending levels per student for instructional materials** and **instructional support staff** (which includes library expenditures). The state ranked more in the **middle of states** in spending for **instructional coordinators** (i.e., curriculum supervisors), **district administrators**, and **operations and maintenance**. The state **ranked among the bottom 20 states** in expenditures for **textbooks, district support staff** (including business office staff)**, student support services, transportation, regular and special education teachers,** and **school administration**.