

WHAT CAN \$3,702 BUY? HOW UTAH COMPARES IN EDUCATION SPENDING AND SERVICES

HIGHLIGHTS

- Utah spent an average of \$5,437 per pupil in 2005-2006, compared to \$9,138 nationally. The gap between Utah and U.S. average per pupil expenditures equals \$3,702. Utah's five peer states (identified in Utah Foundation's 2007 report as being demographically similar to Utah) spent between \$7,700 and \$10,000 per pupil.
- About half the difference between Utah and the U.S. in average per-pupil spending is accounted for by Utah's large class sizes and comparatively lower teacher pay. Research suggests that under the correct conditions, higher pay and smaller classes can increase student achievement.
- Lower spending on support services (pupil and staff support, transportation, administration, and maintenance) accounts for another 42% of the U.S.-Utah spending gap. This spending difference is partly explained by Utah's large schools and districts. Most research on school size and district size points to advantages in school climate and student performance with smaller sizes, particularly for poor and minority students.
- Utah school officials believe that lower spending on instruction, pupil support, and staff support negatively impacts student performance. They also feel that Utah's lower spending on administration, maintenance, and transportation are not generally harmful to education outcomes.

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Many Utahns are familiar with the fact that Utah ranks last in the nation in per pupil spending. But what do other states buy with their additional per pupil expenditures? How does Utah's lower spending level impact schools and learning?

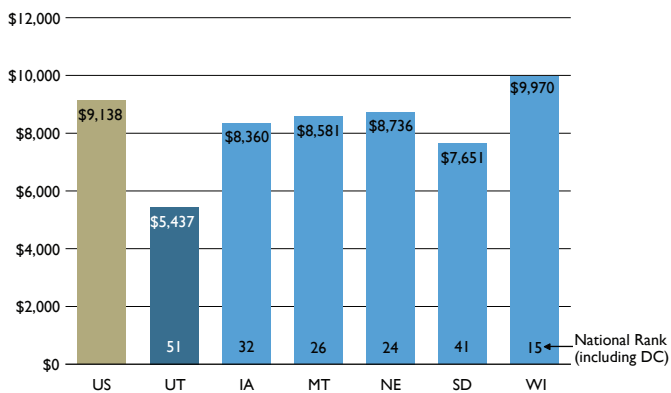
In "School Testing Results, 2006 & 2007: How Utah Compares to Other States," Utah Foundation compared Utah's performance on standardized tests to states with similar demographic characteristics with respect to poverty, race, and parent education level.¹ Figure 1 shows the per pupil current expenditures for the 2005-2006 school year for the U.S., Utah, and Utah's five "peer" states (which were identified in the 2007 Utah Foundation report as being demographically similar to Utah).² While Utah ranks last in per pupil current expenditures, Utah's peer states rank between 15th highest to 41st highest among the 50 states plus the District of Columbia. Utah's per pupil expenditures equal just 59% of the national average. South Dakota, the peer state with the lowest per pupil spending, spends 84% of the national average. It should be noted, however, that recent significant increases in education funding by Utah will not be reflected in this data. Utah's per pupil spending increased \$1,200 during the 2006-2007 and 2007-2008 school years, a 22% increase from 2005-2006.³

Current expenditures are the sum of three categories: instruction, support services, and non-instructional services. The category of current expenditures does not include capital costs (property, equipment, debt financing, construction, etc.). In this report, we focus on instruction and support services, as non-instructional services account for a relatively small fraction (4% nationally) of overall current expenditures.

Figure 2 shows how Utah spending compares to the national average with respect to current expenditures, and the major subcategories for instructional expenditures and support services expenditures. Overall, Utah spends about \$3,700 less per pupil than the national average, spending \$2,100 less per pupil on instruction and about \$1,600 less on support services. Figure 3 and the last column of Figure 2 show what proportion of the overall difference in per pupil spending can be attributed to specific spending categories. Nearly 57% of the difference between Utah per pupil spending and U.S. per pupil spending is a result of differences in instructional expenditures. Support services expenditures account for nearly the rest of the spending gap (about 42%).

Utah Foundation's report "School Testing Results, 2006 & 2007" found that Utah is scoring well below what would be expected for a state with its demographic profile. Utah Foundation identified significantly lower spending levels as a possible contributing factor. Certainly

Figure 1: Per Pupil Current Expenditures, U.S., Utah, and Peer States, 2005-2006



Source: U.S. Census Bureau.

below a specific threshold, spending could be an important constraint on student achievement. In addition, although most people agree that the primary objective of schooling is academic achievement, parents and the public also value other educational outcomes not measured by standardized tests (such as civic virtue, creativity, critical thinking or social skills) as well as certain institutional qualities of the education system (such as responsiveness to parents). These also might be detrimentally affected by Utah's lower spending levels.

DOES MONEY MATTER?

Beginning with the landmark ruling by the California Supreme Court in *Serrano v. Priest* (1971), school finance litigation has forced state courts to address funding inequities within states. Litigants in these cases often relied on the equal protection clauses of state constitutions. In response to court decisions, a majority of state legislatures increased state education funding and adopted funding formulas designed to increase the equity in school finance.⁴ Utah is one of only a handful of states that has never had a school finance lawsuit.⁵

Since 1989, many school finance cases have focused on adequacy, or minimum educational outcomes, rather than equity of funding. These cases have relied on the education clauses of state constitutions rather than the equal protection clauses. Kentucky's 1989 case was a turning point. In the 1989 Kentucky State Supreme Court decision of *Rose v. Council for Better Education*, the Court articulated guidelines for an adequate education in seven areas and specified levels of knowledge in various subjects.⁶ Since then most judges have

either upheld state-finance systems by employing a minimal basic skills definition of adequacy or invalidated systems by calling for a high-quality education for all children. During the 1990s, nearly twenty states were forced by courts to find more money to assure poor children a constitutionally adequate education.⁷

The per pupil estimates for how much an "adequate" education costs range from \$5,000 to over \$15,000 in 2004 dollars because of different methods of estimation, different standards as to what constitutes an adequate education, and because some studies incorporate additional costs for students who are more expensive to educate (such as poor and disabled students).⁸ Economist Susannah Loeb concludes that we cannot currently estimate how much it would cost for all children to reach high standards because no state has succeeded in doing so and the innovations necessary to do so are currently unknown and cannot be priced.⁹

Instead of simply focusing on increasing or equalizing funding for education, some reformers focus on ways that schools could be spending their money more effectively. Researchers with the School Finance Redesign Project (SFRP), which is part of the Center on Reinventing Public Education and funded by The Bill & Melinda Gates Foundation, state that "there is reason to fear that without changes in the way funds are spent, Americans could end up with a more expensive, but not necessarily more effective or equitable, system of public education." SFRP researchers assert that we must first ensure that public funds are focused on student learning, because "if significant amounts of public funds are used unnecessarily for other purposes then no one can say whether existing spending is enough or more is absolutely necessary." Thus far, SFRP research has investigated what prevents the efficient use of funds, how to focus money on instruction, how to attract and reward educators, how to learn how to spend money more productively by linking costs and benefits, and how policymakers can ensure effective use of funds.¹⁰

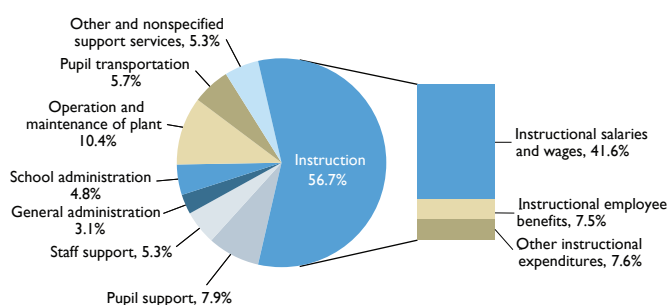
All researchers acknowledge that additional funding could make a difference. John Yinger, a professor of Public Administration and Economics at Syracuse University and director of the Education Finance and Accountability Program, argues that the existing research "shows clearly that school districts with more disadvantaged students must spend more than other districts to obtain the same level of student performance" and that "holding school district characteristics constant, a higher level of student performance requires higher spending per pupil." Yinger also argues that researchers have an obligation to estimate how much a determined level of student performance costs.¹¹

Figure 2: Per Pupil Current Expenditures, U.S. and Utah, 2005-2006

	US	Utah	Difference between US and Utah	Percent of Overall Difference
Total	\$9,138	\$5,437	\$3,702	100.0%
Instruction	\$5,543	\$3,443	\$2,100	56.7%
Teacher/ instructional aide compensation	5,019	3,200	1,819	49.2%
Salaries and wages	3,811	2,271	1,540	41.6%
Employee benefits	1,208	929	279	7.5%
Support services	\$3,225	\$1,655	\$1,570	42.4%
Pupil support	482	190	292	7.9%
Staff support	448	253	195	5.3%
General administration	174	61	113	3.1%
School administration	507	329	178	4.8%
Operation and maintenance of plant	902	516	386	10.4%
Pupil transportation	399	190	209	5.7%
Other and nonspecified support services	312	116	196	5.3%

Source: Census.

Figure 3: Components of the Per Pupil US-Utah Spending Gap, 2005-2006



Source: Census.

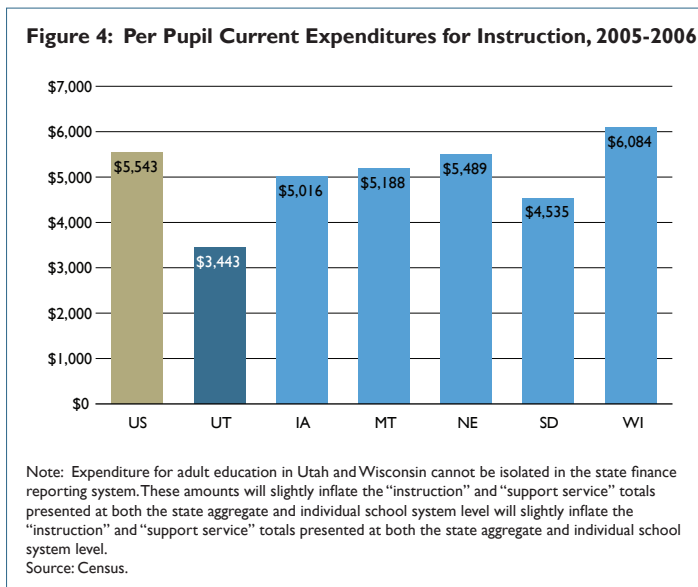
Below, using Census and Department of Education data, we analyze the differences between Utah, its demographic peers, and the nation for the individual spending categories. We also examine the educational services that fall within these categories, and the potential impact of these services on educational outcomes and experiences.

INSTRUCTION

The great majority of instructional expenditures are compensation for instructional personnel (teachers and instructional aides). Instructional expenditures also include purchased technical or professional services related to instruction, tuition to other public and private schools, consumable supplies (copy materials, etc.), and fees for membership in professional organizations. Figure 4 shows how Utah compares to the U.S. and its five peer states with respect to current per pupil expenditures for instruction. Utah spends \$2,100 less per pupil on instructional expenditures than the U.S. overall, and between about \$1,100 and \$2,600 less than the five states that represent Utah's demographic peers.

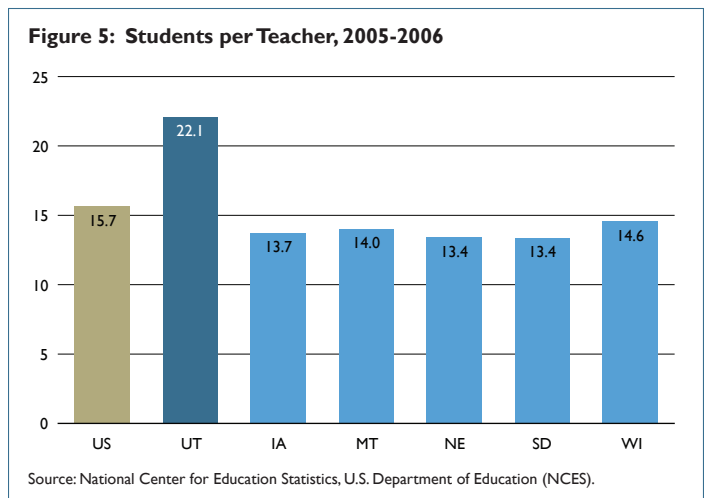
Teacher and Instructional Aide Compensation

Utah spends \$1,819 less per pupil than the U.S. on compensation for instructional employees. Instructional salaries and wages account



for 42% of the per pupil spending gap between the Utah and U.S., while benefits for instructional employees account for 8% of the gap (see Figure 2). Compensation for instructional employees accounts for nearly half of the entire U.S.-Utah spending gap. Utah's per pupil expenditures on compensation are much lower than the national average because Utah has comparatively larger class sizes (or a higher pupil/teacher ratio) and because Utah has comparatively lower salary levels.

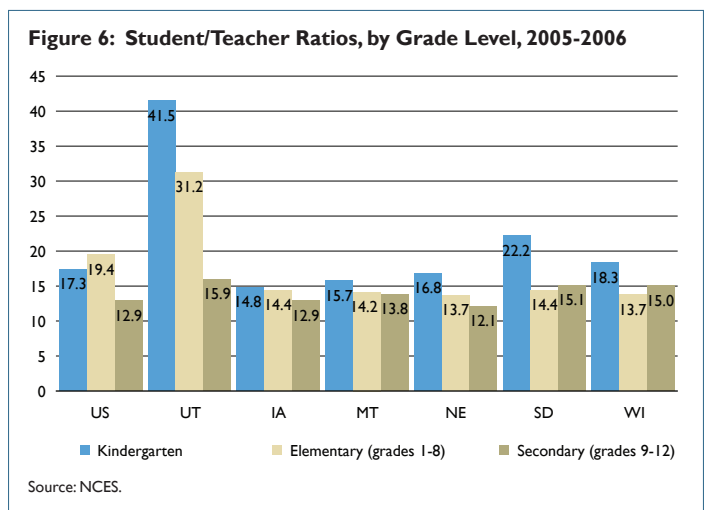
Utah has the highest number of students per teacher in the nation (see Figure 5). Although the pupil/teacher ratio is not the same as class size (class sizes are generally larger than the pupil/teacher ratio), states with higher pupil/teacher ratios also have larger class sizes, so the ratio allows a rough comparison of relative class sizes. Utah's pupil/teacher ratio is 22.1 while the national ratio is 15.7.¹² Utah's five peer states all have a pupil/teacher ratio below the national



average, ranging from 13.4 to 14.6. As Figure 6 shows, when we look at pupil/teacher ratios by grade level, we see the starkest differences in the early grades. At the secondary level, there are 15.9 students for every teacher in Utah, versus 12.9 nationally. Utah's peer states have secondary pupil/teacher ratios between 12.1 and 15.1. Utah's elementary pupil/teacher ratio is 31.2, which is more than 50% larger than the national average of 19.4, and more than double the elementary ratio of the five peer states.

At the kindergarten level, Utah's pupil/teacher ratio is 41.5, more than double the national ratio of 17.3. The five peer states have kindergarten pupil/teacher ratios ranging from 14.8 in Iowa to 22.2 in South Dakota. Utah's pupil/teacher ratio is particularly high for kindergarten because Utah's kindergarten teachers usually teach two sessions each day (a morning class and an afternoon class). Other states have full-day kindergarten (or a higher proportion of full-day kindergarten classes) or half-day kindergarten with each teacher only teaching one session per day. These teachers teach half the day and spend the other half of the day preparing materials, often helping the other kindergarten teacher during the other session. Thus, Utah's kindergarten teachers are responsible for about twice as many students as the average U.S. teacher, but Utah's kindergarten class sizes are not twice as large as the U.S. average.

Utah would need to hire an additional 9,481 teachers in order to bring its pupil/teacher ratio down to the national average. Based on Utah's median overall compensation (salary plus benefits) for



a teacher in 2005-2006, this would cost more than half a billion dollars. This amounts to \$1,043 more per pupil, or 28% of the overall U.S.-Utah spending gap (see Figures 7 and 8).¹³ Since Utah has the same pupil/instructional aide ratio as the U.S. (70 students per aide), the remaining \$776 of the instructional spending gap can then be attributed to Utah's lower compensation levels for teachers and aides. Based on 2004-2005 national and state average teacher salary data from the American Federation of Teachers (2005-2006 national data has not yet been published), Utah's average teacher salary is 78% of the U.S. average teacher salary, or about \$10,000 less.¹⁴

Utah's lower teacher salaries are not only a function of relatively lower wages for teachers but also a result of the fact that Utah's teachers are relatively less educated and less experienced than U.S. teachers.¹⁵ In order to increase teacher salary to the U.S. average for all 32,474 teachers (the number of current teachers plus the number of additional teachers necessary to bring down the pupil/teacher ratio

Figure 7: Per Pupil Expenditures for Instructional Compensation, U.S. and Utah, 2005-2006

	Difference between US and Utah	Percent of Overall Difference
Total	\$3,702	100.0%
Instruction	\$2,100	56.7%
Teacher/ instructional aide compensation	1,819	49.2%
Difference attributable to higher student/teacher ratio than US average	1,043	28.2%
Difference attributable to lower teacher compensation than US average	677	18.3%
Difference attributable to lower aide compensation than US average	99	2.7%

Source: Census, NCES, USOE, AFT. Calculations by Utah Foundation.

to the national average), Utah would need to spend an additional \$344 million (in addition to the half-billion required to lower class size), or about \$680 more per pupil. However, since Utah teachers are less experienced and have fewer course credits than U.S. teachers, Utah could provide teacher pay scales similar to the average national pay scale without paying this full difference.

Also, as we noted above, Utah has significantly increased per pupil expenditures in the last two years. This increase included an across-the-board \$2,500 increase in teacher salary for 2007-2008 and an additional \$1,700 budgeted for 2008-2009. Because this is an across-the-board dollar amount raise (rather than a percent increase in salaries), beginning teachers salaries will jump by the largest percentage, which lawmakers hope will attract more people into the profession.¹⁶ Teacher salaries account for approximately 18% of the overall U.S.-Utah spending gap. Although average instructional aide data for states is not available, the remaining 3% could then reasonably be attributed to aides' lower wages.

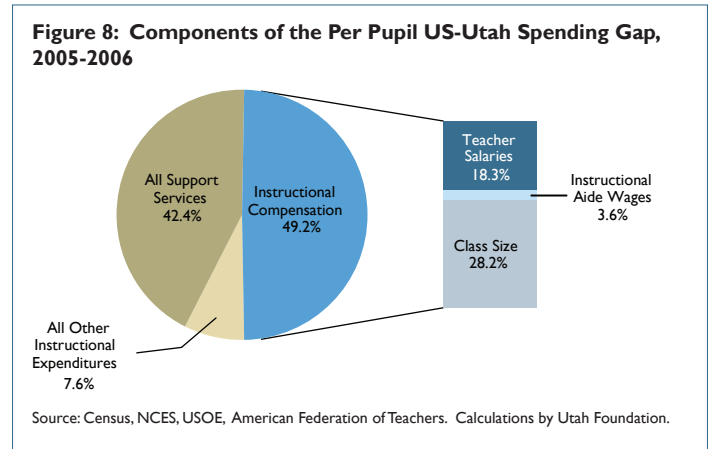
Class Size Research

To many people, it makes sense intuitively that reduced class size could improve student achievement. A recent British study confirms what educators and parents have long suspected: that students are more engaged and spend more time "on task" in smaller classes. Research also demonstrates that class size can result in teachers covering subject matter in greater depth, "more personalized relationships between teachers and students, and safer schools with fewer discipline problems."¹⁷

There is some consensus that class size reduction in the early grades leads to higher student achievement, that the effects are carried into

the upper grades, and that the effects are larger for disadvantaged and minority students. In addition, students, teachers, and parents all report positive effects on the quality of classroom activity as a result of class size reductions.¹⁸ There is also consensus that class sizes should only be reduced in combination with efforts to recruit and retain qualified teachers to prevent a decrease in overall teacher quality.

But other researchers, including prominent economists, have argued that smaller class sizes have no significant effect on student achievement, or have too small an effect to be cost-effective. When Stanford economist Caroline Hoxby analyzed variation in class size driven by natural variation in the population, she found that class size does not have a statistically significant effect on student achievement.¹⁹ It makes sense that smaller class sizes do not necessarily result in better learning, unless teachers alter their teaching practices to take advantage of the reduced number



of students. For example, as in other studies, in the recent British study mentioned above, the researchers found that teachers are not necessarily taking advantage of the smaller number of students to engage more students in collaborative projects.²⁰ Other research has shown that reducing class sizes improves teacher working conditions, increases teacher morale and lowers teacher attrition rates.²¹ Lower teacher attrition and increased student engagement should increase learning and student achievement.

One major drawback to reducing class sizes is that it is very expensive, requiring not only a significant increase in instructional expenditures (in the form of salary and benefits for additional teachers), but also administrative expenditures, since more administrators would be necessary to supervise the additional teachers, as well as a major increases in capital expenditures to provide the additional classrooms.

Teacher Compensation Research

Would higher teacher salaries result in higher quality teaching and increased student achievement? Higher teacher compensation has been associated with lower teacher attrition rates, and lower teacher attrition rates generally mean more-experienced and higher-quality teachers.²² It might also be argued that higher compensation increases worker morale and teacher effort. In addition, higher salaries could entice more people into the teaching profession, making the hiring process more competitive and helping to eliminate shortages in fields like math and science.

However, Eric Hanushek, an expert in the economics of education, argues that “there is virtually no relationship between teacher salaries and student achievement.” In a 2003 review of the research related to teacher quality, Hanushek and fellow economist Steven Rivkin concluded, based on 17 high-quality studies, that there is no strong evidence that teacher salaries are a good measure of teacher quality.²³

Hanushek provides several reasons why teacher salary is not related to student achievement: salary is not based upon teachers’ impact on student learning; salary increases are usually across-the-board and increase salaries for teachers even in areas where there are no shortages; and higher teacher salaries induce all teachers, good and bad, to continue teaching. In addition, Hanushek points out that even though higher salaries induce more people to enter the teaching profession, research shows that districts are poor at predicting which individuals will be high-quality teachers, which means that more applicants may not result in higher quality teachers. Hanushek’s argument suggests that increasing salaries within the current teacher compensation structure will not necessarily increase teacher quality.

Educational researchers generally find greater promise in alternative salary schedules that incorporate student achievement or demonstrable teaching skills into the determination of salary, and allow different salary levels based on teacher shortages for specific subjects or in schools with disadvantaged student populations. Such innovative salary systems are relatively new and utilized by relatively few states and districts, and the research on their effect on student achievement is therefore limited. Researchers with SFRP report that although teachers unions are generally strongly opposed to alternatives to the standard salary scale, teachers themselves have varying attitudes towards performance pay and additional pay for hard-to-staff positions. Based on a survey of Washington State teachers, they found that younger teachers, high school teachers, math and science teachers, teachers with higher math and verbal scores, and Hispanic teachers are more likely than their counterparts to have a favorable attitude toward performance pay and other salary reforms.²⁴

The National Center on Performance Incentives, led by the Peabody College of Vanderbilt University in partnership with the RAND Corporation and the University of Missouri-Columbia, recently published a review of the research on teacher performance pay. They cite nine rigorous studies of performance pay programs, including four international studies and five domestic studies. Seven of these studies concluded that teacher performance pay positively affects student achievement. The other two studies had mixed results. The authors of the review state that the positive results suggest that states and districts should be implementing pilot programs, but that the current research cannot prescribe how the salary systems should be designed. The authors also caution that policymakers “must pay close attention to how student achievement and teacher effectiveness are defined and measured” to avoid concerns such as an overemphasis on standardized tests or discouragement of teacher collaboration.²⁵

SUPPORT SERVICES

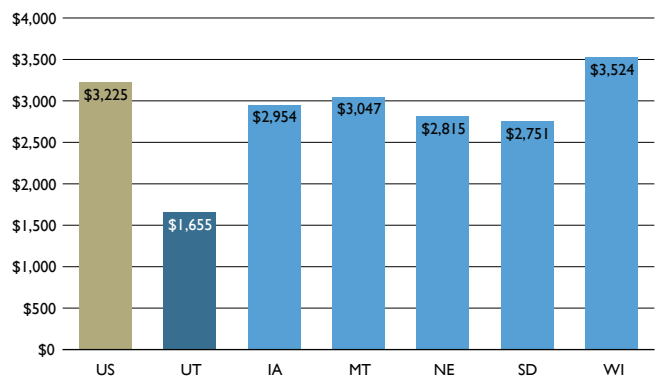
Support services include student services, staff services, administration, operation and maintenance as well as transportation.

Utah spends \$1,655 per pupil or about half of the U.S. average on support services per pupil (see Figure 9). Utah’s peer states spend roughly \$1,000 to \$2,000 more per pupil than Utah does.

Pupil Support

The category of pupil support includes a variety of health services: medical, dental, nursing, psychological, and speech. It also includes social work and counseling, student accounting, record-keeping and

Figure 9: Per Pupil Current Expenditures for Support Services, 2005-2006

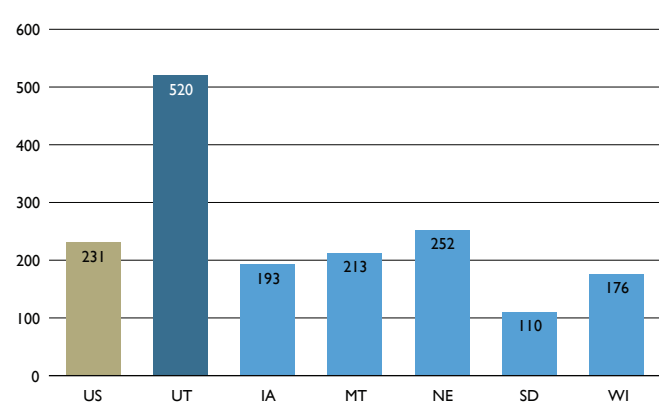


Note: Expenditure for adult education in Utah and Wisconsin cannot be isolated in the state finance reporting system. These amounts will slightly inflate the “instruction” and “support service” totals presented at both the state aggregate and individual school system level. Source: Census.

record maintenance, student appraisal, and placement services. In the U.S., the average spending for these services is \$482 per pupil for these services, while Utah spends \$190 per pupil or about 40% of the U.S. average. This represents about 8% of the total difference in current expenditures between the U.S. and Utah. This spending gap is reflected in the number of staff employed to perform these pupil support services. Nationally, there are 231 students per student support service staff member, while in Utah there are 520 students per staff member, more than double the national ratio and 2 to 5 times the ratios for the five peer states (see Figure 10).

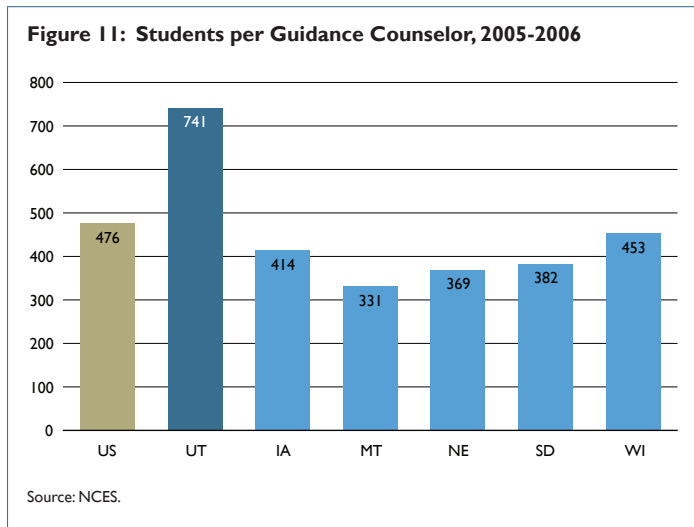
More specifically, Utah has one guidance counselor for every 741 students (see Figure 11). The U.S. average is 476 students per

Figure 10: Students per Student Support Services Staff Member, 2005-2006



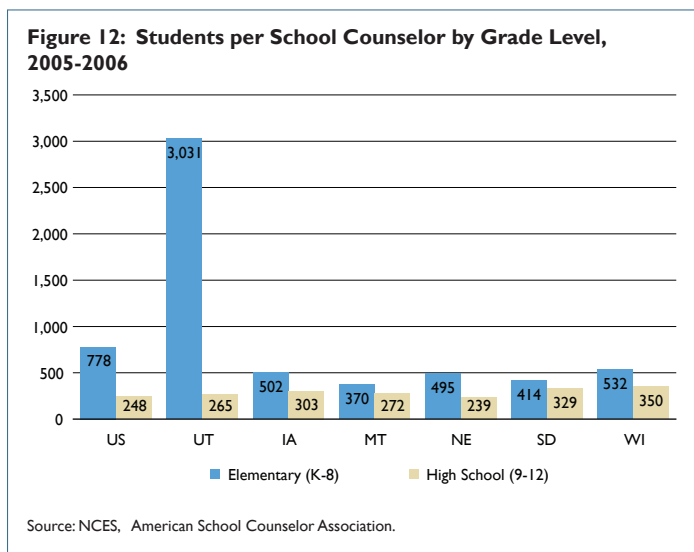
Source: NCES.

guidance counselor, while Utah's peer states all fall below the national ratio with between 331 and 453 students per guidance counselor. The American School Counselor Association and the American Counseling Association recommend a ratio of 250 students per school counselor.²⁶



As Figure 12 shows, the disparity between Utah and the U.S. is much greater at the elementary level (grades K-8) than the high school level (grades 9-12). Utah has 265 high school students per guidance counselor, only slightly higher than the U.S. average of 248 and within the range of ratios of Utah's five peer states (between 239 and 350 students per high school student). However, at the elementary level, Utah has over 3,000 students per guidance counselor, or over four times the national average of 778, and six to eight times larger than ratios of Utah's peer states, which have between 370 and 532 elementary students per guidance counselor. Of the 50 states and D.C., only twelve have elementary student-to-counselor ratios over 1,000, and only one (Minnesota) has a higher ratio than Utah.²⁷

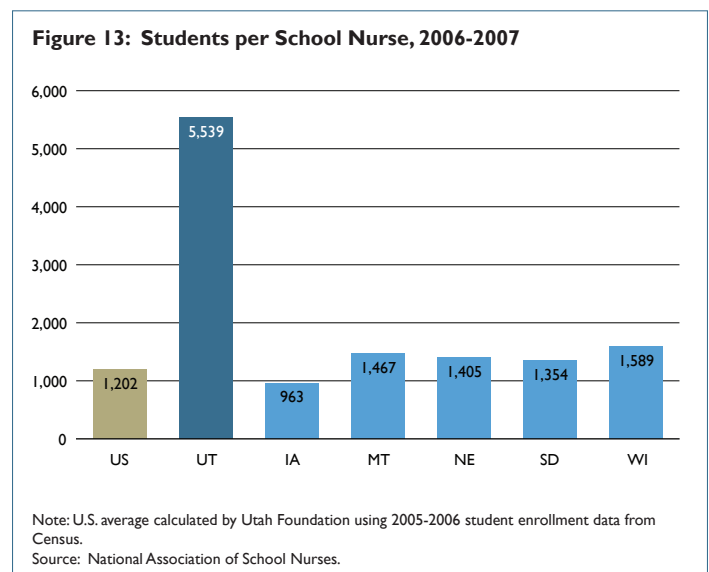
As student achievement (particularly performance on standardized tests) has come under scrutiny, school counseling has begun to focus more on evidence-based programs that affect student outcomes. In response to the desire for greater accountability and evidence of efficacy, researchers are focusing on empirical data and student



achievement outcomes. Researchers have found that school counselors implementing a comprehensive school counseling program (such as Student Success Skills) can positively impact student achievement, grades, attendance, and career decision making, in addition to decreasing classroom disruptions.²⁸

For many years Utah has had the largest student-to-nurse ratio of any state. Utah's very high student-to-nurse ratio has made state and national headlines for the last several years.²⁹ According to the National Association of School Nurses, for the 2006-2007 school year, Utah had 5,539 students per school nurse compared to between 963 and 1,589 students per school nurse in Utah's five peer states, and approximately 1,200 student per school nurse nationally (see Figure 13).³⁰ The U.S. Department of Health and Human Services and the National Association of School Nurses recommend that student-to-nurse ratios be 750 students per nurse for the general school population, 225 students per nurse for the mainstreamed special education population, and 125 students per nurse for special needs and medically fragile populations.³¹

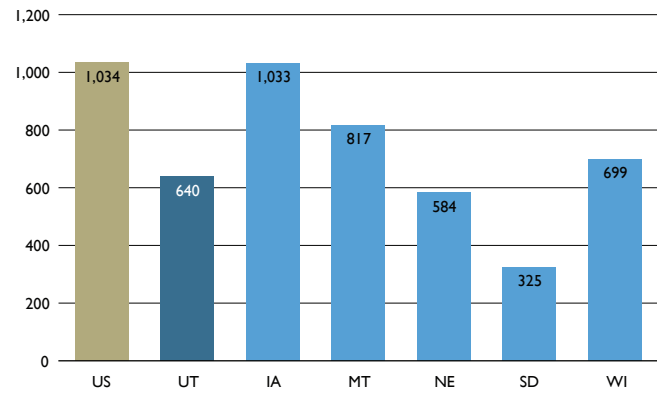
During the past two decades, the responsibilities of school nurses have grown tremendously, as students with severe physical or chronic conditions, such as cerebral palsy, have been mainstreamed into public schools. These responsibilities include case management



of students with chronic conditions such as asthma and diabetes, monitoring for disease and abuse, conducting health screenings, completing health assessments and referrals, and the dispensing of medications. School nurses are especially important as a consistent source of health for uninsured and underinsured children.

Surveys report that school nurses are overwhelmed and unable to fulfill all of the students' health needs, particularly where nurses are responsible for 1,500 or more students. At least twelve state legislatures have laws requiring at least one school nurse per school or school district, although inadequate funding and a general nurse shortage sometimes prevent compliance with state law. When schools lack qualified nurses, other staff members are left to dispense medication, treat injuries, and handle emergencies. Studies have suggested that this practice leads to more medical errors and potentially endangers student health.³²

Figure 14: Students per Instructional Coordinator, 2005-2006



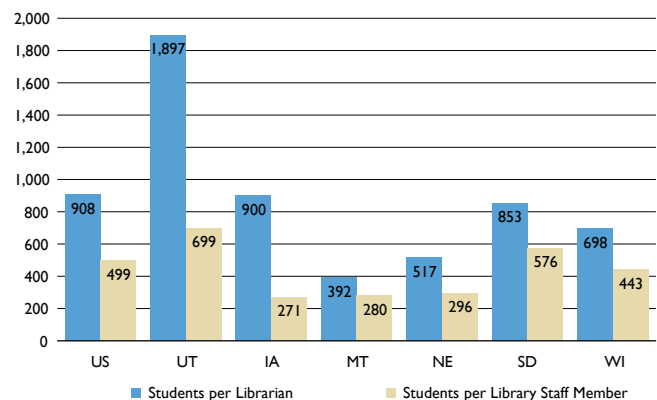
Source: NCES.

Staff Support

The category of staff support includes expenditures for supervision of instruction service improvements, curriculum development, training for teachers and other instructional staff, and instruction services such as media, library, audiovisual, television, and computer assistance. Utah spends about \$250 per student on staff support versus \$450 at the national level. This difference accounts for 5% of the U.S.-Utah spending gap.

Utah does have a comparatively high number of instructional coordinators, which does not seem to fit with the overall staffing situation. In general, Utah's lower funding levels require a greater number of students per staff member. The U.S. Department of Education defines an Instructional Coordinator as "staff supervising instructional programs at the school district or sub-district level." For the 2005-2006 school year, Utah schools had one instructional coordinator for every 640 students versus 1,034 students at the national level (see Figure 14). Utah's peer states have a coordinator-to-student ratio of between 325 and 1034. USOE staff cautioned, however, that states may be including different types of positions in this category, since the position does not have a well-defined role (unlike teacher, aide, or administrator), which makes it difficult to make meaningful state comparisons.

Figure 15: Students per Library Staff Member, 2005-2006



Source: NCES.

On the other hand, Utah's librarians are responsible for twice as many students as the average U.S. librarian (see Figure 15). Utah has nearly 1,900 students per librarian, compared to a national average of about 900. Utah's peer states have between about 400 to 900 students per librarian and all fall below the national average. When we include all library staff, Utah has 40% more students per staff member. Utah has about 700 students per library staff member while the U.S. has about 500 students per library staff member. Utah's peer states have student-to-library staff ratios between 270 and 580.

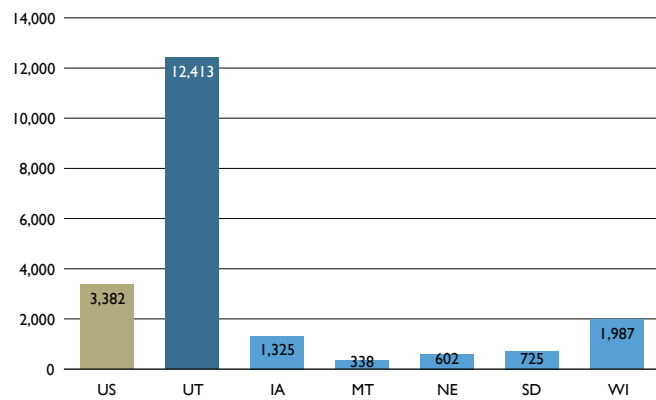
Since 1990, over 60 studies in 19 states have shown clear evidence of a positive relationship between school libraries with qualified school librarians (also called school library media specialists) and student achievement. School libraries have been shown to help students learn more, get better grades, and score higher on standardized tests. Libraries can have an especially positive impact when school librarians collaborate with teachers to support and expand the curriculum using all different types of media, including electronic information resources and other computer resources. School librarians can promote and facilitate students' use of technology to support learning.³³

General Administration

General (district) administration expenditures include compensation for district level administrators, as well as services associated with boards of education and offices of the superintendent.

Utah spends \$61 per student on general administration, or just 35% of the national average (\$174 per student). This accounts for 3% of the U.S.-Utah spending gap. Utah's lower spending level is a result of relatively large districts and relatively fewer general administrative staff members. For the 2005-2006 school year, Utah had about 12,400 students per regular school district (this does not include charter schools) (see Figure 16). Nationally there are about 3,400 students per regular school district. Only a handful of states (Hawaii, Florida, Nevada, Maryland) and the District of Columbia have a higher average number of students per regular district than does Utah. Hawaii and D.C. both have just one district for their entire jurisdiction. Utah's peer states range from a low of about 340 students per regular school district to a high of about 2,000 students per district. All five peer states have ratios well below the national average.

Figure 16: Students per Regular School District, 2005-2006



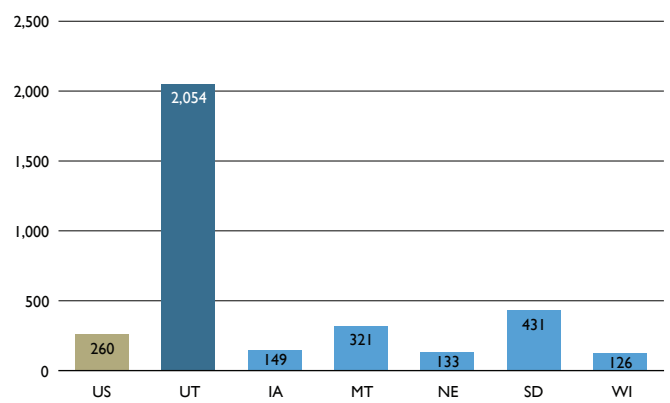
Source: NCES.

Another way to look at district size is to examine the proportion of students who attend small or large districts. Figure 17 shows that 85% of Utah students are part of a district with more than 10,000 students, versus 53% of students nationally and between 7% and 35% of students in Utah's peer states. Thus, a large majority of Utah's students attend school within a relatively large school district. Four of the 100 largest school districts in the nation are in Utah (Jordan, Granite, Davis and Alpine School Districts).³⁴

The average size of Utah school districts is about 2,050 square miles, while the average U.S. district is only 260 square miles (see Figure 18). Utah's peer states have average district areas between 126 and 431 square miles.³⁵

Utah has about 1,300 students per local education agency (LEA) administrator or about double the national average. Local education agencies are usually districts, but also include unaffiliated schools such as charter schools. LEA administrators are therefore generally district administrators. District administrators include superintendents,

Figure 18: Average School District Size in Square Miles, 2000-2001

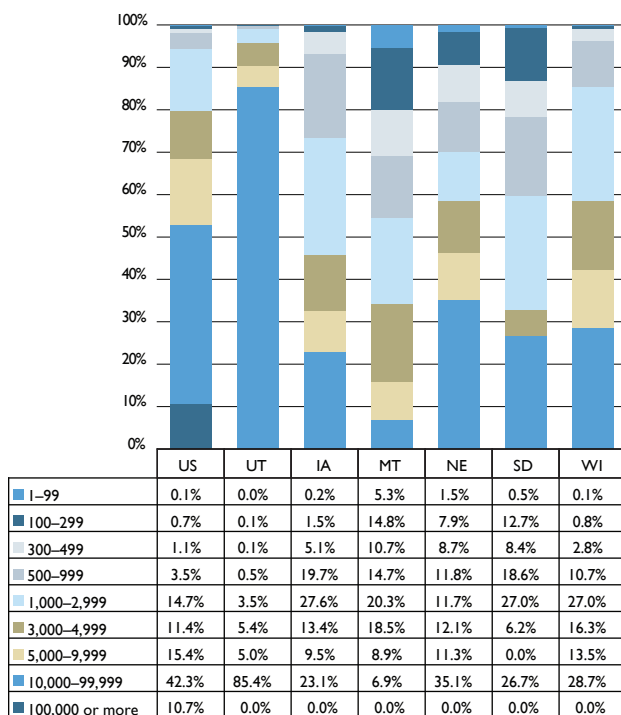


Source: Manhattan Institute for Policy Research.

specialized programs, and adequate facilities,” particularly in rural areas.³⁶ More recently, as states have considered additional consolidation in an effort to save money, researchers have begun to challenge some of the assumptions underlying district consolidation, particularly the assertion that larger districts are more cost-effective. Potential benefits of consolidation include certain fixed costs that do not increase significantly as enrollment increase (such as compensation for superintendent or the curriculum development staff) and price discounts for buying equipment and supplies in bulk. Potential costs of consolidation include higher transportation costs (especially in sparsely populated areas), higher labor costs from stronger unions, and lower parental involvement. Larger districts also tend to have larger schools, and the costs and benefits that accompany them (see “Research on School Size” below).³⁷

In 2005, the Manhattan Institute published a national study suggesting that smaller districts result in higher graduation rates.³⁸ Jay P. Greene, the study's primary author, explained that downsizing may lead to more effective districts because it gives parents more choices and creates competition among districts.³⁹ Economist Caroline Hoxby has also observed higher student achievement in combination with lower costs in areas with more “inter-district choice.”⁴⁰

Figure 17: Percent of Students in Regular Districts by Size of District, 2005-2006



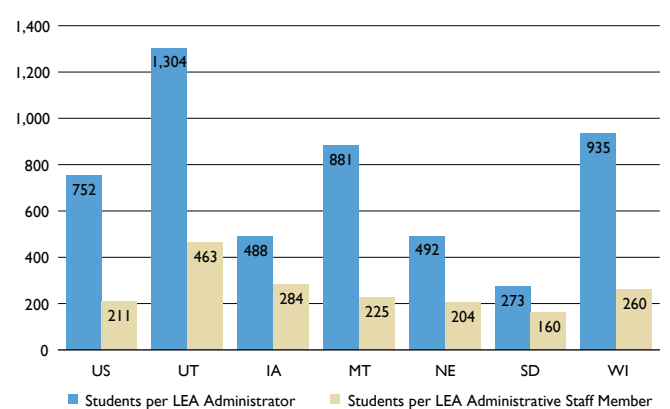
Source: NCES.

deputy and assistant superintendents, and other persons with district-wide responsibilities such as business managers and administrative assistants. In some states, including Utah, district administrators might also include charter school administrators. District supervisors of both instructional support staff and student support staff are not considered district administrators. Utah has 463 students per district administrative staff member (administrators plus their support staffs), or more than double the national average (see Figure 19).

Research on District Size

From 1930 to 1980 the number of U.S. school districts decreased from 120,000 to 15,000 as educational reformers sought to “lower costs, increase administrative expertise, ensure qualified teachers,

Figure 19: Students per LEA Administrative Staff Member, 2005-2006



Note: Local education agencies are usually districts, but also include unaffiliated schools such as charter schools. Source: NCES.

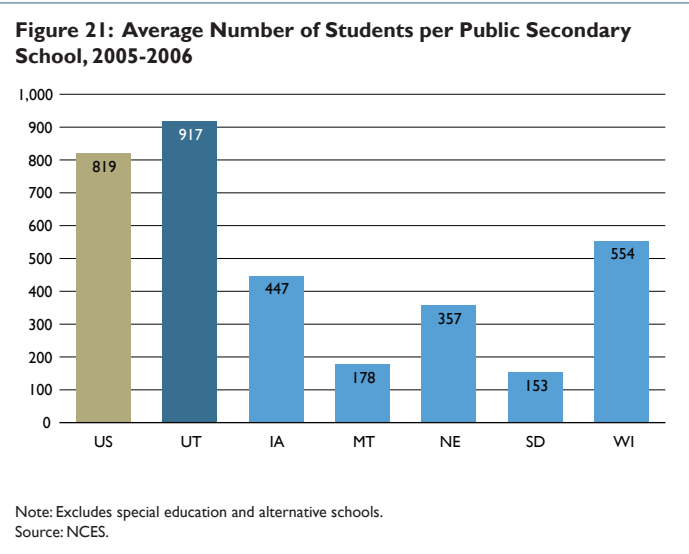
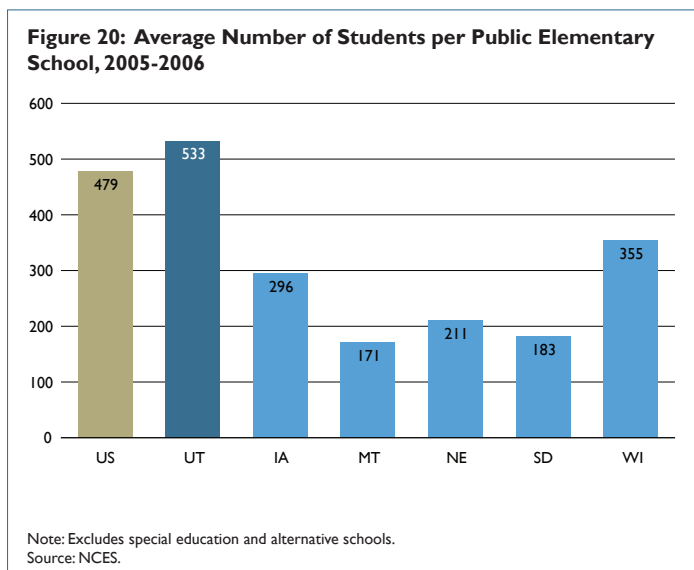
According to a 2005 Deloitte Research study, very small districts improve educational outcomes but also have higher per pupil costs, while very large districts have economies of scale for purchasing but higher administrative costs, increased bureaucracy and decreased student learning. The study suggests that “as a general rule, the very small and the very large school districts tend to spend the most per capita on noninstructional services,” while mid-sized districts seem best able to deliver quality education while keeping costs under control. Deloitte researchers propose shared services (regional cost-sharing arrangements) as a cost-effective alternative to district consolidation.⁴¹

In a review of three decades of research on school consolidation and cost-effectiveness, Syracuse University policy researchers conclude that while very small districts (less than 500 pupils) may reduce instructional and administrative costs by consolidating into districts with 2,000 to 4,000 students, per pupil costs for the same educational outcomes will increase (i.e., districts will encounter diseconomies of scale) at around 6,000 students. Since their analysis does not include transportation costs, the researchers state that optimal district enrollment would be at significantly lower levels for sparsely populated areas.⁴²

School Administration

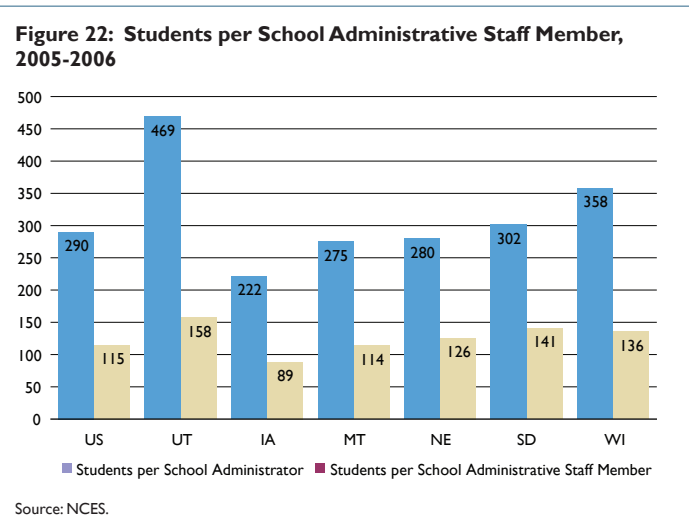
The category of school administration includes expenditures for the office of principal or school-level administrative services. Utah spends about \$330 per pupil for school administration, or about 65% of the national average (\$510). This difference in funding accounts for 5% of the U.S.-Utah spending gap and reflects Utah’s relatively larger schools and relatively fewer administrative staff. As Figure 20 shows, Utah averages about 530 students per public elementary school compared to about 480 students per U.S. public elementary school. Utah’s peer states all fall well below the national average, with between 171 and 355 students per public elementary school.

Utah averages 917 students per public secondary school, about 12% larger than the national average (819 students per public secondary school) (see Figure 21). Utah’s peer states all fall well below both Utah and the national average, with averages between 153 and 554 students per public secondary school.



Utah has 470 students per school administrator, which is about 60% higher than the national ratio of 290 (see Figure 22). Utah’s peer states have between about 90 and 140 students per school administrator. With respect to all school administrative staff members, Utah’s ratio is 158 versus the U.S. ratio of 115.

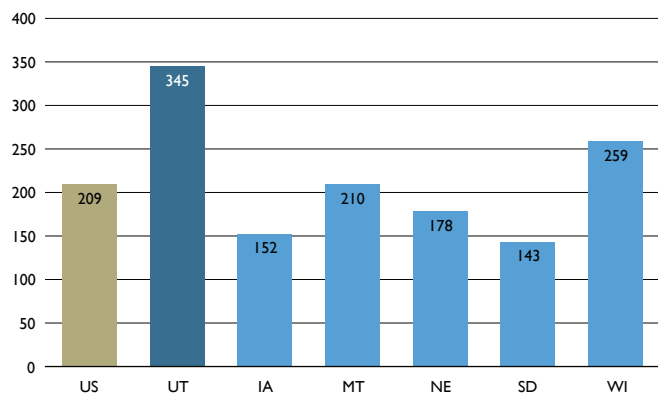
Overall, Utah simply has fewer administrators than other states. For all school and district administrators combined, Utah has 345 students per administrator, or 65 more students per administrator than the U.S. overall (see Figure 23).



Research on School Size

An extensive review of the existing research in 1996 by the U.S. Department of Education’s Northwest Regional Educational Laboratory (NWREL) concluded that the benefits of small schools include more positive student attitudes toward school, less negative social behaviors (such as truancy, classroom disruption, vandalism, aggressive behavior, theft, substance abuse, and gang participation), greater and more varied student participation in extracurricular activities, higher student attendance rates, greater sense of belonging among students, higher student general and academic self-esteem, more positive interpersonal relations between students and teachers, and higher teacher morale. Significantly, much of the research

Figure 23: Students per District and School Administrator, 2005-2006



Source: NCES.

reviewed found that poor and minority students were especially sensitive to school size and demonstrated the most positive benefits from small school size.⁴³ These findings have been supported by more recent research as well.⁴⁴

In addition, a large body of research concludes that smaller school size is associated with improved academic outcomes for students, including higher test scores and higher graduation rates. However, without strong scientific evidence from a controlled experiment, it is difficult to determine conclusively whether reduced school size causes or merely correlates with positive outcomes. Some researchers suggest that school size may facilitate organizational practices, such as personalized instruction and high quality professional development, that promote student learning. Theoretically, larger schools may have cost benefits because of fixed costs (principal, librarian), larger facilities (cost of heating plant, communications system, science and computer labs shared across more students), more specialized teachers, and more productive teachers if they are able to benefit from the experiences of their more numerous colleagues. Accordingly, policymakers have worried about the cost of smaller schools. However, a growing number of studies have concluded that smaller schools are more cost-effective, when one considers not the cost-per-student but the cost-per-graduate.⁴⁵

The Education Commission of the States reports broad consensus that “there appears to be a particularly strong correlation between smaller school size and improved performance among poor students in urban school districts.”⁴⁶ Some research suggests that larger schools actually improve achievement in affluent communities, or at least that affluent communities can sustain larger schools without detrimentally affecting achievement.⁴⁷ Ohio University professor Craig Howley has extensively studied school and district size, as well as the interactions between school size, poverty, and achievement. Howley and his colleagues have concluded that smaller schools and smaller districts consistently correlate with smaller achievement gaps between rich and poor students, since small schools seem to mitigate the effects of low socioeconomic status (the “equity effect”).⁴⁸ Interestingly, Howley and colleague Robert Bickel also have found that while small schools in large districts have smaller achievement gaps, large schools in small districts showed a “negligible” improvement in equity.⁴⁹

The 1996 NWREL review reported that many researchers “indicate that an appropriate and effective size is 300-400 students for an

elementary school and 400-800 students for a secondary school,” while acknowledging a lack of agreement among researchers and educators regarding the definition of a “small” or “large” school. Researchers with the Center for Policy Research in New York write that “there is some evidence that moderately sized elementary schools (300-500 students) and high schools (600-900 students) may optimally balance economies of size with the potential negative effects of large schools.”⁵⁰ Other experts caution against the concept of an “optimal” or “ideal” size or range. For example, Howley suggests that the size of a grade-level cohort is a more appropriate metric and that suitable size will likely vary from school to school based on factors such as student poverty.

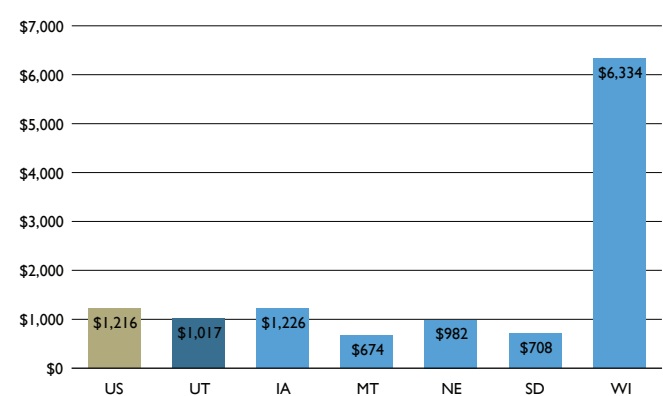
Even advocates of small schools agree that smaller school size is a key ingredient of school reform but not the “silver bullet,” and cannot achieve the anticipated gains without appropriate supports and conditions, as has been demonstrated by the mixed results from the “schools-within-schools” experiments.⁵¹ Some experts advise that small schools “hold promise in certain times and places” and that implementing small schools in a “blanket fashion is likely to prove shortsighted and wasteful.”⁵² And there are those defenders of large, comprehensive high schools who argue that small high schools “cannot support the wide range of athletic teams, clubs, theatrical productions, and competitions that Americans expect from high schools.”⁵³

Operation and Maintenance of Plant

Operation and maintenance of plant includes expenditures for building services (heating, electricity, air conditioning, property insurance), care and upkeep of grounds and equipment, vehicle operation and maintenance unrelated to student transportation, and security services. Utah spends about \$520 per student on operation and maintenance, or 57% of the U.S. average (about \$900 per student). This difference in spending accounts for over 10% of the overall U.S.-Utah spending gap for current expenditures. One possible explanation for Utah’s lower operation and maintenance costs is that Utah’s buildings may be newer because of our rapidly growing student population. The data for capital spending does not show Utah spending more than the national average on capital outlay. However, capital spending is not a perfectly clear indication of building activity because of variations in the cost of land and construction across states.

Capital outlay refers to spending for construction of buildings and roads; purchases of equipment, land and existing structures; as well as additions, replacements, and major alterations to structures. Capital

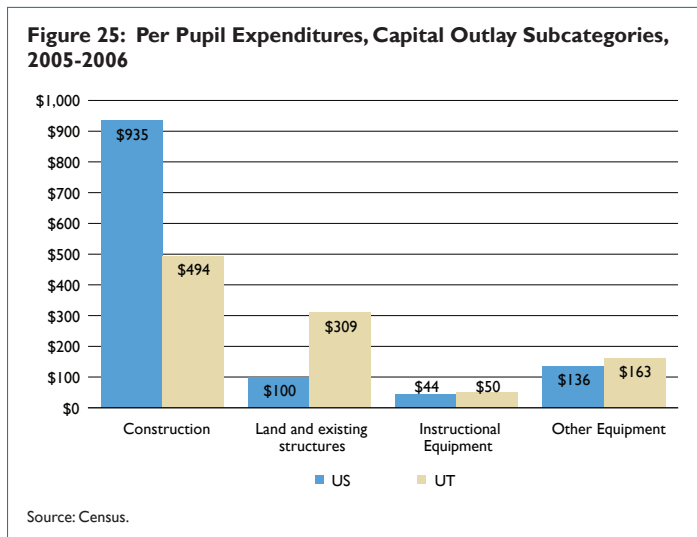
Figure 24: Per Pupil Total Capital Outlay Expenditures, 2005-2006



Source: Census.

outlay is not included in current expenditures. As Figure 24 shows, Utah spends \$1,017 per student on capital outlay, or 84% of the national average (\$1,216 per pupil).

Per pupil, Utah spends about half the national average on construction, triple the national average on land and existing structures, and a little more than the national average on instructional and other equipment (see Figure 25). According to Larry Newton, USOE School Finance Director, Utah’s low construction costs and high spending on land and existing structures reflect the fact that “many districts will add-on to existing facilities rather than building complete new structures on a new site” in order to save money.⁵⁴



Pupil Transportation

The category of pupil transportation includes expenditures for the transportation of public school students including vehicle operation, monitoring riders, and vehicle servicing and maintenance. Utah spends \$190 per student on transportation, or less than half of the national average (about \$400 per pupil). This represents 6% of the overall spending difference between the U.S. and Utah. Utah’s low transportation costs are surprising given the fact that larger districts usually result in higher than average transportation costs.

Lower costs could be the result of more efficient routes, a more concentrated student population, lower compensation for drivers, or fewer services to students. For example, although Utah complies with the federal standards for the minimum distance a student must live to be bussed to school (at least 1.5 miles for elementary and at least 2 miles for grades 7 and above), other states may choose to bus students who live shorter distances or students who would have to walk dangerous routes. Murrell Martin, Pupil Transportation Specialist at USOE, explains that Utah has lower transportation costs because Utah transports a smaller percentage of students than the U.S., and at a lower cost per student transported. Utah transported 34% of all pupils in 2006-2007, compared to 55% nationally for 2004-2005. In 2006-2007 Utah spent \$556 per pupil transported, while the U.S. spent \$737 (in 2006-2007 dollars) in 2004-2005 per pupil transported.⁵⁵

SCHOOL OFFICIALS’ COMMENTS

In order to provide some insight into how these lower spending levels affect districts and schools in Utah, we asked state school officials and

superintendents of some of Utah’s large districts to comment on the spending gap for the different categories under current expenditures, and whether the gap was a reflection of greater efficiency or lesser educational quality.

Instruction

Overall, low instructional expenditures, and Utah’s relatively large class sizes and lower teacher salaries, were seen as detrimental to educational quality. Superintendents generally believe that smaller class sizes will improve student achievement, and mention that parents from other states are “shocked” by Utah’s large class sizes. State officials and one superintendent (who was concerned about teacher shortages) remarked on the need to keep teacher salaries competitive with other states and districts. State officials were mindful of the enormous capital and administrative costs (in addition to instructional costs) of reducing class size, and pointed to the need for additional funding for special education teachers.

Pupil Support

School officials and superintendents generally believe that we are under serving Utah’s students by spending significantly less than other states on pupil support. One superintendent stated that because of lower staffing ratios overall, parents from other states often ask him the “Where is. . .” question: Where is the nurse, social worker, aide for the teacher, or office staff? Another superintendent felt that students are being helped, but that they could be better served with additional funding. Several officials mentioned school counselors as particularly critical. At the elementary level, counselors help students with “significant social, emotional and health issues that, if not addressed, cause them to struggle academically.” At the secondary level, counselors may help increase graduation rates by identifying and helping students likely to drop out.

Staff Support

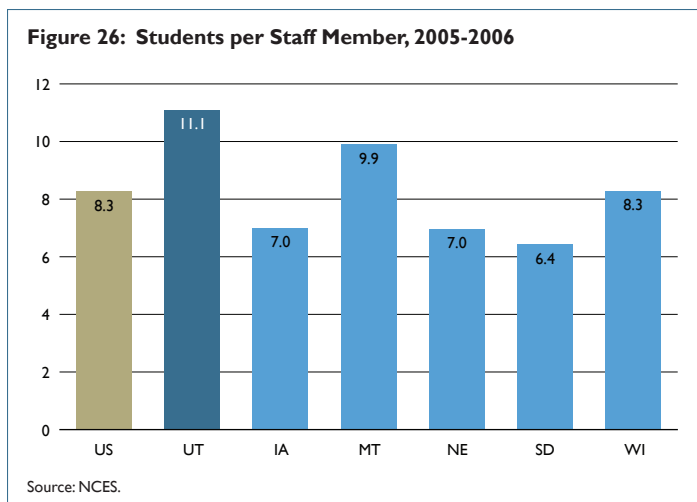
Utah’s lower expenditures on staff support were generally viewed as a service deficit. One school official asserted that teachers are “under supervised, under coached, and under supported,” with some teachers only being evaluated once every three years. Other officials also mentioned the lack of support for teachers. One superintendent notes that the lack of specialists and in-service training is especially detrimental for math at the elementary level, since some teachers may lack mastery of the subject and since elementary math skills are critical for success in math at the secondary level.

Administration

Although many school officials identified low administrative costs as favorable, some officials noted that there is a downside to fewer administrators. State officials believe large and highly consolidated districts are more efficient. One school official stated that some suggest that, with respect to efficiency and curricula-offering, the optimal school district size is around 40,000 students. This official also noted that the split of Jordan School District would likely increase administrative costs without really creating districts that feel smaller or more responsive to parents, since the two new districts will each have several tens of thousands of students (Jordan School District currently has over 78,000 students). Another official felt that whether large districts were positive or negative depended on how district size affects the relationship between schools and parents,

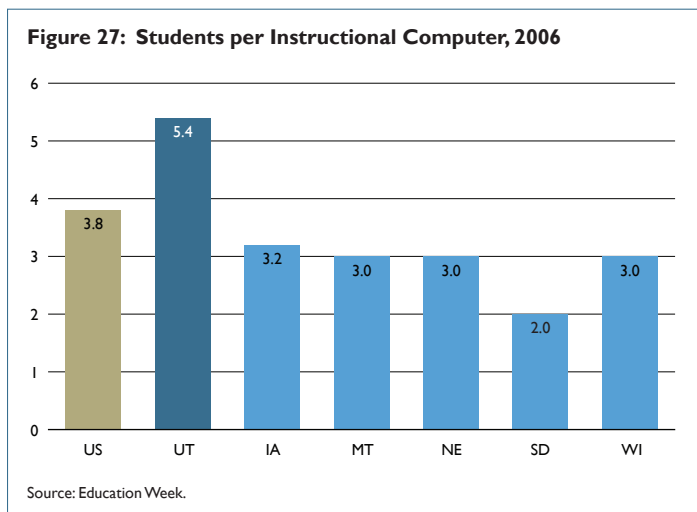
noting that parents are happy with a large district if individual schools have appropriate freedom and autonomy.

At the school level, fewer administrators mean less supervision of teachers, less support for teachers for discipline problems in the classroom, and fewer opportunities for students to connect to administrators. One superintendent noted that Utah simply has fewer human resources in general, but argued that many education reforms, such as Smaller Learning Communities and Professional Learning Communities, “are designed to have more adults per student in our schools” and to make a positive difference in student achievement through the strength of relationships between staff and students. Overall, Utah has 11.1 students per staff member, or about 34% more students per staff member than the U.S. (see Figure 26). Utah’s peer states have as few as 6.4 and as many as 9.9 students per staff member.



Operation and Maintenance of Plant

Overall, school officials believe that lower spending on operation and maintenance of facilities is a positive reflection of Utah’s efficient low-cost school buildings. School officials note that Utah spends more money initially to build efficient buildings that save money over time. Also, school officials stated that Utah has the advantages of lower wages for custodial workers, fewer security problems (no metal detectors), low electricity prices, and perhaps relatively newer



buildings due to rapid growth. On the other hand, school officials believe that lower costs might also be a result of fewer air conditioned schools, smaller plots and fewer specialized facilities (e.g., art room) for elementary schools, less attention to exterior maintenance of buildings, and less equipment (such as computers) to be maintained. Utah has 5.4 students per instructional computer, compared to a U.S. average of 3.8 students per computer (see Figure 27).

Pupil Transportation

State officials believe that Utah’s low transportation costs are a cost advantage. They believe that Utah is more efficient due to computer routing software and auditing of routes, tiered busing (buses serving two school bus routes with staggered bell schedules), as well as a concentration of students in urban areas who live shorter distances from their schools. They also believe that districts have a strong incentive to be efficient since districts and the state share the cost of pupil transportation. On the other hand, superintendents dislike diverting funds from the classroom to cover the cost of transportation.

CONCLUSION

Utah has struggled with low per pupil spending in public education for many years, and a crucial question is “Do Utah’s lower spending levels negatively impact student learning and students’ and parents’ satisfaction with the public schools?” What is Utah unable to afford because of its low spending levels? By examining in finer detail the differences between Utah, the U.S., and five of Utah’s demographic peer states, this report helps answer that question.

Utah’s large class sizes and comparatively lower teacher pay account for about half of the U.S.-Utah per pupil spending gap. Research on reducing class size and increasing teacher pay shows mixed results in effectiveness, but studies do show that both reforms can be effective if they involve changes in the way schools work. These changes can include different teaching methods to take advantage of smaller classes and different incentives to focus teachers on student performance in exchange for higher pay.

Support services account for another two-fifths of the spending gap between the U.S. and Utah. Utah spends just 40% of the national average on pupil support. This is particularly apparent with guidance counselors and school nurses, where Utah is much higher than the national average and Utah’s peer states. In the staff support category, Utah is far behind other states in the number of students per librarian, providing less opportunity to enrich learning outcomes through library media.

One way Utah has adapted to low per pupil resources is through having large school districts, which allow for lower administrative spending per pupil. Utah also has large schools and low spending on school administration. These provide some economies of scale by consolidating purchasing and transportation and by limiting the number of high-ranked, expensive officials. However, a growing body of evidence suggests that large districts and large schools harm educational outcomes, especially for disadvantaged children. A recent state law has made it easier to split school districts, but up to this point, the only approved split will still leave two very large districts that may suffer from the same difficulties described in the research on large districts.

Utah school officials expressed the opinion that Utah is disadvantaged by low spending for instruction, pupil support, and staff support. These lower expenditures represent a service deficit caused by the low amount of per pupil resources. These officials also felt that other spending differences reflect Utah's cost advantages and are not generally harmful to education outcomes; these include Utah's low spending on district and school administration, operation and maintenance of buildings, and pupil transportation.

Utah is losing the competitive economic edge of having an exceptionally well-educated workforce and suffering from some of the income and race achievement gaps affecting the rest of the country. Continuing to spend the same amount of money on the same programs is probably not sufficient to meet Utah's current challenges. Recent legislative action has significantly increased overall teacher pay and focused on pay for types of teachers in short supply. These efforts are likely to help improve teacher quality, but much more should be done. Utah should reallocate its current spending in more effective ways and seek to increase spending to pay for cost-effective educational reforms that positively impact student achievement.

Some of the differences in levels of educational services shown in this report likely affect Utah's performance compared to our demographic peer states. In almost every category of spending, Utah's five peer states were spending significantly more and providing much lower student-to-staff ratios. Some of the differences in spending can be credited to Utah's cost advantages, but when Utah's peer states are providing pupil/teacher ratios 40% smaller, nearly twice the guidance counselors, twice the number of librarians, and district and school sizes that are a fraction of the size of Utah's, some of these factors are surely affecting learning outcomes.

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