

## Chapter 2

### Study Findings—Data Utilization in the Southwest Region

Information on instructional resources and student achievement is critical for supporting education policy decisions. In order to better understand how data are used to support policy decisions in the southwestern region, SEDL researchers examined publicly available data reports and summaries, policy analyses, and research studies on resources and student performance that displayed or examined existing data in the four states. We identified reports and research studies that used state data on education resources through Web searches, discussions with state policymakers, and searches of relevant databases such as the Education Resources Information Center (ERIC). The following three areas of data use were targeted for this overview:

1. We sought to better understand which state data have been used to support policy decisions about education resource issues such as state spending levels or teacher resources such as teacher qualifications or compensation.
2. We investigated whether state data have been used to better understand the relationship between resources and student performance.
3. We asked whether previous research included data about student, school, or district characteristics to better interpret results.

From this assessment of data utilization in the four study states, we conclude that state policymakers request and use existing data to understand education resources, especially regarding policy issues such as adequacy and equity of funding. We found research reports and data summaries on fiscal and staff resources in all four states. We also conclude, however, that state education data are not used to their full potential to inform policy issues regarding resources. Researchers have infrequently used existing data in the four study states to answer

research questions on the relationship between resources and student performance and the effect of student, school, or district characteristics. Data use has been largely limited to a few topical areas within the issue of education resources, such as school funding formulas, adequacy of education funding, and descriptive studies of finances and teachers.

### *Education Resource Data and State Policy*

Education researchers and policy analysts have used state data in the four study states to answer questions related to education resources. In Arkansas, litigation prompted the legislature to commission a study of educational resource adequacy, and authors used existing financial and staffing data collected by the Arkansas Department of Education to provide cost estimates for providing adequate resources to schools and districts (Odden, Picus, & Fermanich, 2003). State financial data have been used in similar ways to support fiscal decision making in Louisiana and Texas. For example, state data in Louisiana were compiled for an analysis of education adequacy (Augenblick & Tetreault, 2001), and in Texas, state fiscal data were used to estimate a cost-of-education index for the state funding formula (Alexander, Gronberg, Jansen, Keller, Taylor, & Treisman, 2000).

Researchers and state agencies also have compiled a wide range of descriptive information that could support policy decisions about instructional resources. Three of the four study states make report cards available to the public on the status of schools and districts; these report cards contain limited information about fiscal and/or staff resources. Additionally, the Louisiana State Department of Education (2003a) has examined teacher supply for the state and school districts. That agency has also produced data summaries on school staffing, revenues and expenditures, and salaries for use by the state board (Louisiana Department of Education, 2003b). In New Mexico, limited descriptive data on teacher salaries, school funding, and

pupil:teacher ratios from existing data are used in reports and policy analysis (Legislative Education Study Committee, 2002). A vast array of financial, staffing, and teacher data are available from the Texas Education Agency's Web site, and information has been reported from state data on issues such as teacher mobility and retention (Texas Center for Educational Research, 1999; Texas Education Agency, 1994, 1995).

### *Education Resources and Student Performance*

Although descriptive data that measure education resources do inform policy decisions, of specific interest to us is how policy analysts and researchers have used state data to explore the relationship between student performance and resource allocation. The reports cited above address resource issues; however, they do not link resource allocation to student performance. Evidence that explains this relationship and that also uses existing data from the four study states is limited. No major studies that examine the relationship between fiscal or staff resources and student performance using state data were found for Arkansas or New Mexico, and only a small number of studies were found that used Louisiana and Texas data.

The Louisiana Department of Education recently published results of analyses of state data that examined teacher test scores, finding a relationship between teacher test scores and student performance. Also using Louisiana state data, Crone-Koshel and Singer (2002) compared the performance of schools receiving additional funds for implementing comprehensive school reform programs with Title I schools that did not have additional funds and found no significant differences.

In Texas, several important studies have been conducted. Ferguson (1991) determined that a systematic relationship existed between school resource inputs and student outcomes using state data aggregated to the district level. Hanushek, Kain, and Rivkin (1998) and the Texas

Schools Project used state data to examine the relationship between teachers and student achievement. A resulting working paper suggested a relationship between teacher quality and student outcomes, with teacher quality accounting for at least 7.5 percent of the total variation in student achievement (Hanushek et al., 1998). Another related study examined teacher salaries and found a weak but significant relationship between salaries of experienced teachers and student achievement (Hanushek, Kain, & Rivkin, 1999). These same researchers also examined teacher experience and salaries in schools with low-achieving students and found that experienced teachers are more likely to leave schools because of a disadvantaged, low-achieving student population than because of salary levels (Hanushek, Kain, & Rivkin, 2004). The Texas Legislature commissioned a study to determine the cost of achieving specified levels on student performance. The study examined resource inputs needed to educate students and also considered the different school environments that raise the level of necessary inputs. Authors found significant cost differences for students in different education environments (Gronberg, Jansen, Taylor, & Booker, 2004).

### *Student, School, and District Characteristics*

Policymakers must consider how policy options might be different for schools or communities with different characteristics. Data about the needs of diverse learners could be applied to policy priorities such as narrowing the achievement gap and addressing the resource deficits faced by high-poverty and high-minority schools. As part of this assessment of data utilization, we examined how policy analysts and researchers have incorporated demographic data and other data on students, schools, and districts into investigations of education resources.

SEDL's 2003 resource allocation study found that after controlling for student poverty, student race/ethnicity, student special education status, and district size, significant differences in

resource allocation patterns between high-performing and low-performing districts disappeared (Pan et al., 2003). Other studies have confirmed the importance of considering the influence of demographic characteristics and other variables such as parent education and urban locale on the relationship between resource allocation and student achievement (Betts, Rueben, & Danenberg, 2000; Ferguson & Ladd, 1996; Goldhaber & Brewer, 2000; Roza, Miles, & Foley, 2003).

Researchers in the four study states have used state data to understand the role of demographic factors on student learning. In Louisiana, for example, a number of empirical studies have examined the role of poverty, race, ethnicity, rurality, and school composition on academic achievement (Caldas & Bankston, 1998; Franklin & Glascock, 1998; Kennedy, 1995; Lindsey & Fillippino, 2002). Arkansas researchers have studied the achievement gap between Black and White students and the effect of school size and poverty on academic achievement (Barnett, Ritter, & Lucas, 2003; Johnson, 2002; Mulvenon, Stegman, Ganley, & McKenzie, 2002). Although these studies considered the role of demographic and other school characteristics in education achievement, they did not relate student achievement to education resources. Hanushek et al. (1999) incorporated demographic factors as control variables in their study of teacher resources and used student and family characteristics from the Texas Education Agency database, including race, ethnicity, gender, eligibility for free and reduced-price lunch, and student mobility. Harter (1999) also used data from the Texas Education Agency to examine the differences in resource allocation between high- and low-poverty elementary schools. She concluded that high-poverty schools are more susceptible to the ineffective use of resources.

Based on this assessment of data utilization in the four study states, SEDL researchers conclude that state education data are underutilized and policy audiences need (a) to expand the use of existing education data to support decision making on instructional resources; (b) to

examine data on both resources and student performance to better understand how education inputs and expected outputs relate; and (c) to incorporate data on student, school, and district characteristics when examining education resource issues. To address the feasibility of utilizing existing state education data for policy research, we discuss the availability and usability of these data in the four states in chapter 3. We also consider the policy questions that can and cannot be addressed with existing education data.