

Using Large-Scale Assessments to Evaluate the Effectiveness of School Library Programs in California

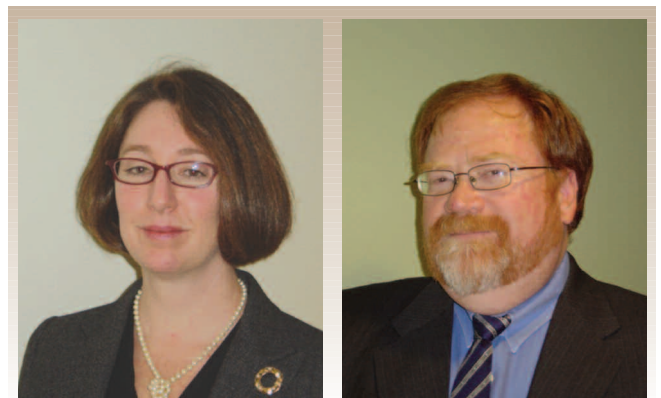
The authors are the joint recipients of the Phi Delta Kappa Outstanding Doctoral Dissertation Award for 2006. Theirs is the first such winner to be summarized in the *Kappan*, but it won't be the last. A brief summary of each year's winning study will appear in one of the late spring issues.

BY STACY SINCLAIR-TARR AND WILLIAM TARR, JR.

THE increased emphasis on accountability is causing educators to focus on what students have learned, rather than on what has been taught, and this has created a need for quantitative measures of the effectiveness of educational programs. Our study evaluated school library programs by comparing student achievement at schools that have libraries with achievement at schools that do not have libraries.

According to the American Library Association (ALA), a school library is "an active, technology-rich learning environment with an array of information resources that combine effective learning and teaching strategies and activities with information access skills."¹ In addition, the ALA specifies that, for a school to be classified as having a school library, it must employ a credentialed library media teacher. We adopted these definitions for our study.

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We asked several research questions: Is there a difference in student achievement, as measured by standardized assessments in English/language arts and mathematics, between schools with similar demographics that either do or do not have a library program? Do criterion-referenced and norm-referenced testing instruments yield similar results? If a significant relationship exists between library programs and achievement, what factors within the programs may affect this relationship?

We examined data from 4,022 California schools, in-

cluding 2,589 elementary schools, 893 middle schools, and 540 high schools. To determine which of the schools had libraries, we used the California School Library Surveys for 2000-01 and 2001-02, developed and administered by the California Department of Education (CDE) with the California School Library Association, and the CDE School Library Database, which recorded the results of each school's survey. For our achievement data, we used each school's aggregate scores on the California Standards Tests (CSTs) in English/language arts and mathematics and on the California Achievement Test, 6th Edition Survey (CAT-6) in reading, language, and mathematics. The CSTs are criterion-referenced tests designed to measure student performance against the state's standards, and the CAT-6 is a nationally norm-referenced test designed to compare student achievement with that of a nationwide student population.

RESEARCH METHODS

While previous studies examined demographic factors independently to make comparisons among schools, research indicates that student achievement at schools with multiple challenges is actually lower than if the impact of each challenge were calculated independently.² To address the complexity of the schools' overall circumstances (socioeconomic status, English fluency, ethnicity, school staffing, year-round programs, and teacher credentialing), we used the California School Characteristics Index (SCI), which was developed by the CDE Policy, Evaluation, and Research Division, to compare similarly challenged schools with one another.

Because the schools involved in our study differ from one another in student and staff demographics, an analysis of covariance (ANCOVA) allowed us to adjust mean performance levels to estimate how schools would have performed if they all possessed the same demographics. For this ANCOVA, the presence of a school library program was the non-linear independent variable, and the SCI, adjusted for school and student demographics, was the linear covariate. The dependent variables were the percentage of students at or above the "proficient" performance level on the CSTs in English/language arts and mathematics and the percentage of students at or above the 50th percentile on the CAT-6 in reading, language, and mathematics. The level of statistical significance used in this study was $p < .05$.

If a relationship was identified between higher student achievement and the presence of a school library program at a particular grade level, specific factors within the program were examined using a multiple regression analysis. The purpose of this analysis was to discover the extent to which each factor (or combination of factors) was associ-

ated with higher student achievement.

RESULTS AND CONCLUSION

Statistically significant positive relationships were found between the presence of a school library and student achievement on both the English/language arts and mathematics CSTs at the elementary and middle school levels. Statistically significant positive relationships were also found between the presence of a school library and student achievement on the reading, language, and mathematics CAT-6 at the elementary level and on the mathematics CAT-6 at the middle school level. Surprisingly, no statistically significant relationships were found between the presence of a school library and student achievement, as measured by either criterion- or norm-referenced assessments, at the high school level.

When we found statistically significant relationships between the school library and student achievement at the elementary and middle school levels, we examined specific factors within the school library. At the elementary level, a number of factors had a statistically significant relationship with student achievement, including the size of the collection, hours of operation, presence of a video collection, types of technology offered, and whether the library offered a program of curriculum-integrated skills instruction. At the middle school level, no specific factor was found to have a statistically significant relationship with student achievement.

While our results did not support previous findings, when we duplicated the methods of previous studies, we were able to replicate their results. This finding should lead to a rich conversation about how to evaluate school programs in future studies, with particular attention paid to the use of criterion-referenced assessments and to the methods for comparing schools with similar demographics. Future studies should use methods that take into account the cumulative nature of the challenges facing many of our schools, as opposed to examining each factor independently.

One recommendation that can be drawn from our study is that education policy makers need to develop a clear vision for the school library and communicate that vision to all constituencies. This will ensure that school library programs are designed to support schools' core instructional goals.

1. *Information Power: Building Partnerships for Learning* (Chicago: American Library Association and Association for Educational Communications and Technology, 1998).

2. Technical Design Group, *Construction of California's 1999 School Characteristics Index and Similar School Ranks* (Sacramento: California Department of Education, 2000). **K**

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