

School Librarian Staffing Linked with Gains in Student Achievement, 2005 to 2011



"Reading is a window to the world. Reading is a foundational skill for learning, personal growth, and enjoyment."

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Research about the impact of school librarians on student achievement has become increasingly urgent in the current educational climate, where a variety of pressures, including decreased funding at the federal, state, and local levels, as well as widespread staff cuts, have converged to call the value of school librarian positions into question.

Building on previous research that has correlated various aspects of school libraries (staffing, collection size, information literacy instruction, etc.) with achievement scores,¹ we conducted a study to examine the impact of school librarian staffing on student achievement with an emphasis on two important factors. The first factor was time: instead of examining staffing data and test scores at only one point in time (a "snapshot" approach that precludes the possibility of making assumptions about cause and effect), we analyzed this data across two time points. The second factor was poverty. We included this factor because whenever studies of school libraries report associations between levels of library staffing and test scores, a very reasonable question is posed: Why do you believe this association reflects cause and effect? Perhaps, the questioner suggests, it is simply a matter of schools in wealthier communities being able to afford to employ endorsed librarians and parents in wealthier communities raising children who—being more advantaged socially and economically, and living in more information-rich home environments—tend to earn higher test scores. Indeed, many of the school library impact studies conducted since 2000 found that the strongest predictor of test scores was poverty or the lack thereof in the community. Those studies also found that school libraries were still associated with

test scores, even when poverty was taken into account. We aimed to build on this body of evidence by controlling for poverty in our study.

BACKGROUND

Before discussing the study, let's consider what school librarians believe about the primacy of reading and what they see as their role in teaching it. According to the American Association of School Librarians' (AASL) *Standards for the 21st Century Learner*:

Reading is a window to the world. Reading is a foundational skill for learning, personal growth, and enjoyment. The degree to which students can read and understand text in all formats (e.g., picture, video, print, etc.) and all contexts is a key indicator of success in school and in life. As a lifelong learning skill, reading goes beyond decoding and comprehension to interpretation and development of new understandings.²

These standards do not just pay lip service to the value of reading. They have been aligned with the Common Core standards that were derived from, and now influence, state standards-based tests, such as the Colorado Student Assessment Pro-

1 See <http://www.lrs.org/impact.php>, <http://library.mansfield.edu/impact.asp>, and http://www.scholastic.com/content/collateral_resources/pdf/s/slw3_2008.pdf.

2 <http://www.ala.org/aasl/guidelinesandstandards/learningstandards/standards>

gram (CSAP) reading tests.³ It is clear that school librarians consider the teaching and encouragement of reading—both for curricular reasons and as a lifelong learning skill—to be among their most basic responsibilities. Accordingly, they intentionally pursue a wide variety of activities that should be expected to have a direct impact on students' reading scores.

3 See "Crosswalk of the Common Core Standards and Standards for the 21st Century Learner" at <http://www.ala.org/ala/mgrps/divs/aasl/guidelinesandstandards/commoncorecrosswalk/index.cfm>.

For our study, we analyzed staffing data and CSAP reading scores in 2005 and 2011 to determine the impact of school librarians on student achievement over time. Why these years? The latter year was chosen because it is what was most currently available at the time of our study. As for 2005, that was the school year approximately halfway between the recent Great Recession and the previous recession (2001). As tightened budgets resulting from recession and postrecession fiscal pressures

have probably been the major factor influencing school library staffing decisions, it seemed important to choose a base year as distant as possible from the two latest recessions, both of which impacted public schools severely.

COLORADO DATA ON SCHOOL LIBRARY STAFFING AND STUDENT ACHIEVEMENT

From the Colorado Department of Education (CDE), we obtained school-by-school staffing data that included counts of librarians and library assistants, both those endorsed and those not endorsed by CDE, and CSAP reading scores.

In Colorado, reading is one of the most prevalent areas of CSAP testing, including almost all students in grades 3 to 10. Based on their scores, the performance of students is categorized as advanced, proficient, partially proficient, or unsatisfactory. For our study, we chose to focus on the students in the advanced (highest-scoring) and unsatisfactory (lowest-scoring) groups. We summarized reading results by school, adding the number of each school's students scoring at the advanced and unsatisfactory levels across grades and dividing by the number of students tested in the school.

Then we created the following matrices that were used for our data analysis:

1. Endorsed Librarian Staffing Status in 2005 and 2011
Based on the staffing data, each school was assigned to one of the following categories:
 - a) It had an endorsed librarian in both 2005 and 2011.
 - b) It had an endorsed librarian in 2011 but did not have one in 2005.
 - c) It did not have an endorsed librarian in 2011 but did have one in 2005.
 - d) It did not have an endorsed librarian in either 2005 or 2011.
2. Reading Score Level/Change over Time

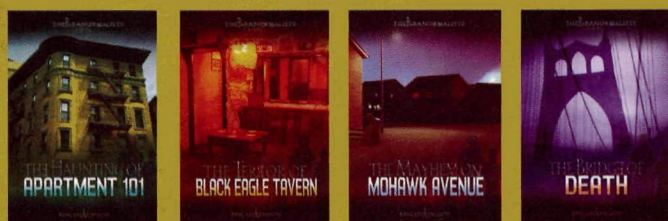
Schools were also classified based on two dimensions related to CSAP reading scores: Whether they scored above or below the median for each performance level in 2011, and whether the change in their

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JR NONFICTION

BIOGRAPHIES: SPORTS AND ENTERTAINMENT

Eli Manning: Super Bowl Hero.

Monnig, Alex. (Playmakers. Sportszone). ABDO, 2013. 32p. LB \$27.07. 978-1-61783-549-0. Grades 2-6. Young readers learn about the personal and sports accomplishments of Eli as he achieves elite quarterback status. Color photos and interest boxes add to the layout design. The book concludes with fun facts, web links, glossary, and brief index. Twenty titles in Sportszone also include Carmelo Anthony, Tim Tebow, Jeremy Lin, and Kevin Durant.

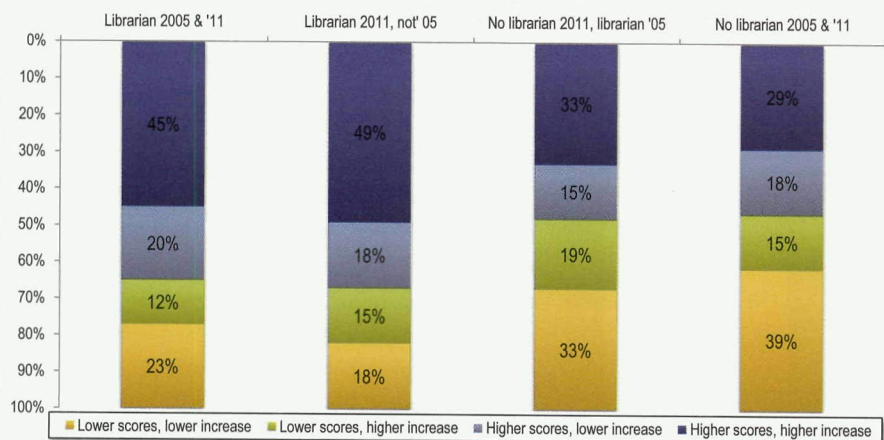
John Cena. Sandler, Michael.

(*Wrestling's Tough Guys*). Bearport Publishing, 2013. 24p. PLB \$23.93. 978-1-61772-573-9. Grades 2-6. After being bullied as a child for his small size, Cena started weight lifting "to protect myself." He loved the sport and went on to lift weights through college before he discovered wrestling. Now only three wrestlers have held the WWE Championship longer than Cena. The title features bright photos, fun fact, glossary, and simple index.

Justin Bieber: Pop and R & B Idol.

Higgins, Nadia. (Pop Culture Bios. Super Singers). Lerner Publishing, 2013. 32p. PLB \$26.60. 978-1-4677-0294-2. Grades 3-6. While Bieber enjoys success and wealth now, the reader will learn that he grew up quite poor, living with a single mother and sleeping on a pull-out couch. He always loved music and his mother and grandparents encouraged him to sing at home and in church. Reading about Bieber's rise to fame makes for interesting reading, and the fact boxes add zip: "Hot: Random Things Justin Likes: Rubik's Cubes," and "Cold: Things Justin Doesn't Like: Dark (He likes a light on to sleep)." Source Notes, More Information, and a brief index conclude the title.

Chart 1
Endorsed Librarian Staffing Levels by CSAP Advanced Reading Levels in Colorado Public Schools, 2005-2011



performance level between 2005 and 2011 was above or below the median for such change. Hence, each school also fell into one of four categories for level and change in reading scores:

- It had higher scores in 2011 and a higher increase in scores from 2005 to 2011.
- It had higher scores in 2011 and a lower increase in scores from 2005 to 2011.
- It had lower scores in 2011 and a higher increase in scores from 2005 to 2011.
- It had lower scores in 2011 and a lower increase in scores from 2005 to 2011.

ADVANCED READING LEVELS BY ENDORSED LIBRARIAN TRENDS, 2005 TO 2011

Our results showed that there is a positive and statistically significant relationship between advanced reading levels and endorsed librarian staffing trends (see Chart 1). Schools that either maintained or gained an endorsed librarian between 2005 and 2011 tended to have more students scoring advanced in reading in 2011 and to have increased their performance more since 2005 (45% and 49%, respectively) than schools that either lost their librarians or never had one (33% and 29%). Conversely, schools that either lost a librarian during that period or never had one (33% and 39%) tended to have fewer students scoring advanced in 2011 and to have seen lesser gains—or indeed, losses—since 2005

Chart 2
Endorsed Librarian Staffing Levels by Unsatisfactory Reading Levels in Colorado Public Schools, 2005-2011

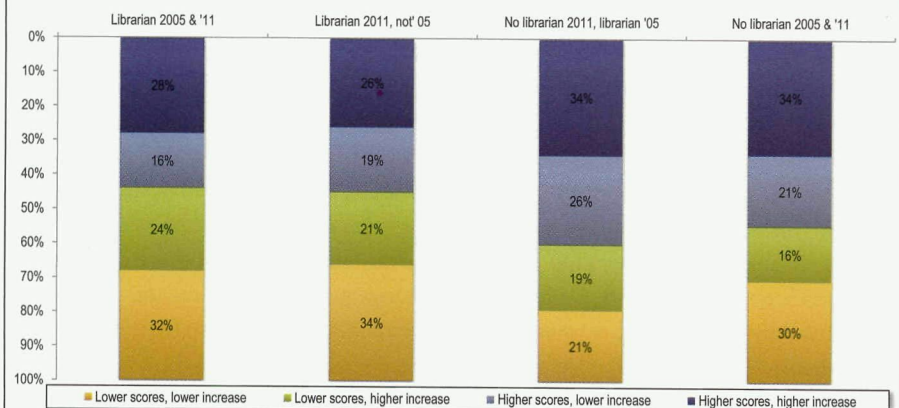
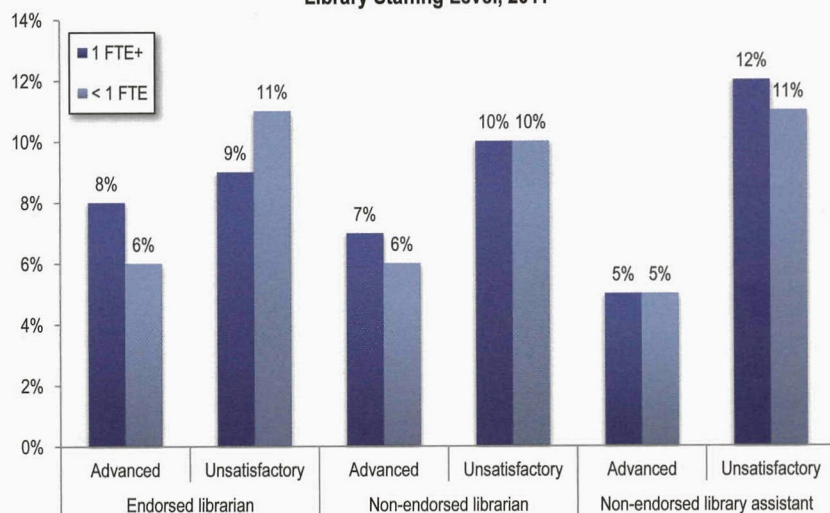


Chart 3
Colorado Public Schools Scoring Advanced & Unsatisfactory in Reading by Library Staffing Level, 2011



than schools that maintained or gained a librarian (23% and 18%).

Notably, schools with the largest percentage of higher advanced reading scores in 2011 and higher increases in advanced reading scores between 2005 and 2011 (49%) were those that gained an endorsed librarian during that interval. If an endorsed librarian does her or his job well, this is what one would expect.

UNSATISFACTORY READING LEVELS BY ENDORSED LIBRARIAN TRENDS, 2005 TO 2011

There is a negative and statistically significant relationship between unsatisfactory reading levels and endorsed librarian staffing trends (see Chart 2). Schools that either maintained or gained an endorsed librarian between 2005 and 2011 tended to have fewer students scoring unsatisfactory in reading in 2011 (i.e., lower scores) (28% and 26%, respectively) and to have reduced that problem more since 2005 (i.e., lower increase) than schools that either lost their librarians or never had one (both at 34%). Conversely, schools that either lost a librarian during this period or never had one (32% and 34%) tended to have more students scoring unsatisfactory in 2011 and to have seen that problem increase more since 2005 than schools that maintained or gained a librarian (21% and 30%).

Notably, schools with the largest percentage of lower unsatisfactory reading scores in 2011 and lower increases in that figure between 2005 and 2011 (34%) were those that gained an endorsed librarian during the interval. As with advanced reading scores, if an endorsed librarian does her or his job well, this is what one would expect.

ASSESSING THREE ALTERNATIVE MODELS OF SCHOOL LIBRARY STAFFING BY ASSOCIATION WITH CSAP READING SCORES

In the above analysis of change in librarian staffing and reading scores from 2005 to 2011, we see the consequences over time of schools shifting from one library staffing model to another. Basically, there are three major options for who runs a school library: an endorsed librarian (i.e., within Colorado, endorsed by CDE as either a school librarian or a teacher librarian/media specialist), a nonendorsed librarian (i.e., having neither type of librarian endorsement), and a nonendorsed library assistant. Many school libraries have library assistants, ideally working under the supervision of an endorsed librarian. In reality, however, there are more and more schools—especially at the elementary level—where library assistants run libraries without supervision. It is the type of situ-

ation that would never be tolerated in the classroom teaching context at any level. Teacher aides rarely if ever work independently of teachers.

To shed further light on the relative merits of these three library staffing options, we examined 2011 data alone, comparing mean percentages of students earning advanced and unsatisfactory CSAP reading scores for schools with at least one full-time equivalent (FTE) endorsed librarian to schools with less than one FTE of this type. Similar analyses were conducted for nonendorsed librarians and nonendorsed library assistants.

The results, illustrated in Chart 3, show that in 2011, schools with at least one FTE endorsed librarian averaged significantly higher advanced CSAP reading scores (8% vs. 6%) and significantly lower unsatisfactory scores (9% vs. 11%) than schools with less than one FTE endorsed librarian.

Differences in 2011 advanced and unsatisfactory reading scores for schools with and without nonendorsed librarians and with and without nonendorsed library assistants (working without endorsed or nonendorsed librarians) were not statistically significant. In other words, school library programs that were not managed by endorsed librarians—whether the alternative was a nonendorsed librarian or library assistant—had no measurable association with CSAP reading scores.

TAKING POVERTY INTO ACCOUNT

To account for poverty in our study, we correlated library staffing level with advanced and unsatisfactory reading levels while controlling for the percentage of students in a school who were eligible for free and reduced-cost meals (the generally accepted indicator of poverty in education research). This type of analysis allowed us to determine whether librarian staffing still had an impact on CSAP scores, even when holding poverty constant. Our results differed slightly from the staffing model analyses discussed above. In this instance, both endorsed and nonendorsed librarians were positively correlated with advanced CSAP



YA NONFICTION

BIOGRAPHIES:
ENTERTAINERS

Dizzie Gillespie. Boone, Mary. (American Jazz). Mitchell Lane, 2013. 48p. PLB \$29.95. 978-1-61228-272-5. Grades 5-9. Thanks to a teacher who introduced him to a band "to keep him out of mischief," Gillespie began a career as one of the most accomplished and influential jazz musicians ever, noted for his puffed out cheeks and being a founder of Bebop style. This high/low title has colorful photos and concludes with a chronology, chapter notes, bibliography, glossary and index.

The Glee Cast: Inspiring Gleek Mania. Britton, Felicity. (USE TODAY Lifeline Biographies). Twenty-First Century Books, 2013. 112p. LB \$34.60. 978-0-7613-8639-1. Grades 6-12. With the television hit continuing, here is USA TODAY primary source research material combined with high interest teen reading in a collective biography of Broadway stars to the unknown. Fact boxes, detailed Source Notes, Further Reading and index provide useful back matter.

Justin Bieber: Musical Phenom. Bodden, Valerie. (Contemporary Lives). ABDO, 2012. 112p. LB \$34.22. 978-1-61783-321-2. Grades 6-12. Having moved from a YouTube singing sensation to a full fledged headliner, Bieber continues to be successful as his young fan base grows up with him. A time line, quick facts, glossary, source notes, and index included. Other entertainers in the series include Robert Downey Jr., Eminem, Lady Gaga, Jay-Z, Kim Kardashian, Taylor Swift and Justin Timberlake.

Neil Patrick Harris. Cartlidge, Cherese. (People in the News). Lucent Books, 2012. 104p. LB \$33.45. 978-1-4205-6615-0. Grades 6-12. Growing up with a love of performing, Harris always had the encouragement of his family. In Chapter 5, "Shattering the Glass Closet," Harris' homosexuality is age-appropriately discussed. Rounding out the title are notes, important dates, more information, and an index.

Percent of Students by CSAP Reading Level	School Library Staffing Level in Full-Time Equivalents (FTEs)		
	Endorsed librarian (N = 1548)	Nonendorsed librarian (N = 1048)	Nonendorsed library assistant w/ no librarian (N = 766)
Advanced	.23*	.17*	.06
Unsatisfactory	-.12*	-.09**	-.02

Table 1. Partial Correlation Coefficients for CSAP Reading Achievement and Library Staffing Levels Controlling for Poverty for Colorado Public Schools, 2011

* $p < .001$; ** $p < .05$

Notes:

N represents the number of cases (schools) for which data were available, not the number of schools with each type of school library staff.

The standard of statistical significance is .01, indicating less than one chance in 100 that the results occurred randomly. Notably, for all but one of the significant findings, there was less than one chance in 1,000 of such a random occurrence.

The analysis for nonendorsed library assistants excluded schools with endorsed and nonendorsed librarians. Thus, the correlation coefficients for this staffing level are not comparable to the others.

Poverty was represented by the percentage of a school's students who were eligible for free and reduced-cost meals.

reading scores and negatively correlated with unsatisfactory scores (see Table 1). In other words, when controlling for poverty, both endorsed and nonendorsed librarians had positive and statistically significant correlations with reading scores. Notably, however, these relationships are stronger for endorsed librarians than nonendorsed ones. What did not change was the lack of relationship between nonendorsed library assistants working without a librarian and reading scores. Apparently, library assistants working without supervision do not have any impact on reading scores, either advanced or unsatisfactory.

SCHOOL LIBRARIANS PLAY A VITAL ROLE IN INCREASING STUDENT ACHIEVEMENT

Our study updates, confirms, and extends the findings of the growing body of research about the impact of school libraries on student achievement. We found that students at schools that gained or maintained an endorsed librarian to manage the library program averaged higher CSAP reading scores and higher increases in those scores over time than students at schools whose library programs were run by either nonendorsed librarians or library assistants. In addition, the association of endorsed librarians with higher reading scores cannot be explained away by local economic conditions. Overall, this body of research is remarkably consistent in its findings: regardless of how rich or poor

a community is, students tend to perform better on reading tests where, and when, their library programs are in the hands of endorsed librarians. Furthermore, at schools where library programs gain or maintain an endorsed librarian when school budgets are tight, students tend to excel. At schools where library programs lose or never had an endorsed librarian, students suffer as a result.

Keith Curry Lance is a consultant who works with libraries and related organizations as a researcher, statistician, public speaker, proposal writer, and facilitator. He was founding director of the Library Research Group at the Colorado State Library in 1987. Since retiring from that position in 2007, he has focused on consulting both independently and with the RSL Research Group. Lance is best known in the school library community as the principal investigator of the most prolific research team studying the impact of school libraries and librarians on academic achievement and student learning. For more information visit www.keithcurrylance.com.

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