

School Librarians Continue to Help Students Achieve Standards: *The Third Colorado Study (2010)*

November 2010

Briana Hovendick Francis
Keith Curry Lance
Zeth Lietzau

School Librarians Continue to Help Students Achieve Standards: *The Third Colorado Study (2010)*

November 2010

by

**Briana Hovendick Francis
Keith Curry Lance
Zeth Lietzau**



For more information about this report, contact:



Library Research Service
201 East Colfax Avenue, Suite 309
Denver, CO 80203-1799
303.866.6900
Web site: www.LRS.org

The Library Research Service is a unit of the Colorado State Library, Colorado Department of Education, that is operated in partnership with the Library and Information Science Program, Morgridge College of Education, University of Denver.

This study was funded through the Library Services and Technology Act (LSTA) by the Colorado State Library, Colorado Department of Education.

For copies of this and other LRS publications, contact the Library Research Service at 303-866-6900 or one of the staff above via e-mail. This publication is also available in .pdf format at <http://www.LRS.org>.

To cite this report (APA Style):

Francis, B.H., Lance, K. C., Lietzau, Z. (2010). *School librarians continue to help students achieve standards: The third Colorado study (2010)*. (Closer Look Report). Denver, CO: Colorado State Library, Library Research Service.

School Librarians Help Students Achieve Standards

Table of Contents

Table of Contents	i
Acknowledgements	ii
Executive Summary	iii
Introduction	1
School Library Staffing	3
School Library Budgets	5
School Library Visits	7
School Library Collections	9
Conclusion	11

School Librarians Help Students Achieve Standards

Executive Summary

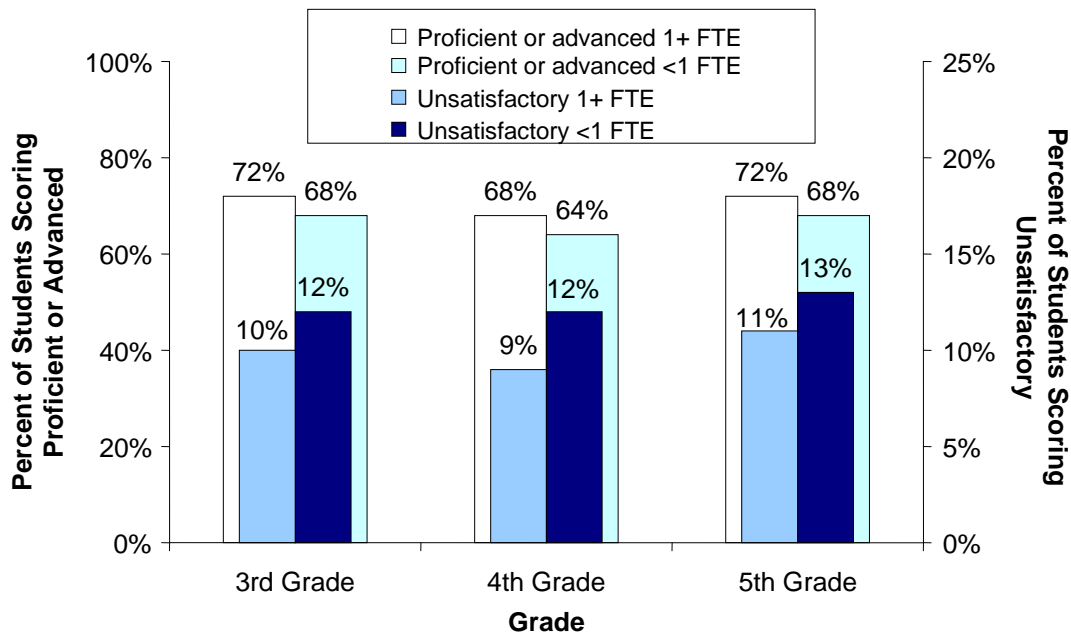
Known links between stronger school library programs and better Colorado Student Assessment Program (CSAP) scores are confirmed by a recent examination of 2007-08 data on school libraries and 2008 data on students scoring proficient or advanced on CSAP reading. In addition, stronger library programs were also associated with reduced percentages of students receiving unsatisfactory CSAP scores, thereby helping to close the achievement gap.

Librarian Staffing

Elementary schools with at least one full-time endorsed librarian* averaged better CSAP performance than those with less than one full-time endorsed librarian.

More students earned proficient or advanced reading scores and fewer students earned unsatisfactory scores where there was a full-time endorsed librarian. Elementary schools with librarians averaged 68 to 72 percent of students scoring proficient or advanced and 9 to 11 percent scoring unsatisfactory. Schools without librarians averaged 64 to 68 percent scoring proficient or advanced and 12 to 13 percent unsatisfactory (see Chart 1).

Chart 1
CSAP Reading Performance by Librarian Staffing: Grades 3–5, 2008



* For purposes of this study, the term “librarian” refers to an individual endorsed by the State of Colorado as a School Librarian, a Teacher Librarian, or a Media Specialist.

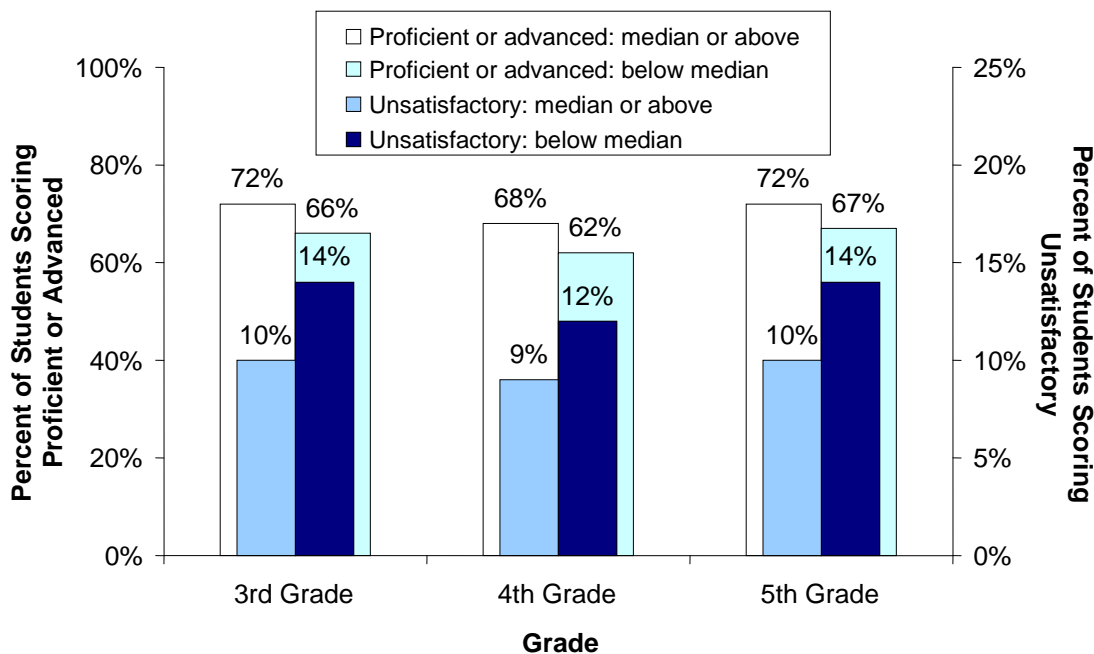
School Librarians Help Students Achieve Standards

Library Expenditures

During the 2007-08 school year, median total expenditures for an elementary school library were \$4,200, or \$10.53 per student. Elementary schools that spent more on their libraries averaged better CSAP reading performance than those spending less.

More students earned proficient or advanced reading scores and fewer students earned unsatisfactory scores where school libraries were better funded. Elementary schools with better-funded libraries averaged 68 to 72 percent of students scoring proficient or advanced and 9 to 10 percent scoring unsatisfactory. Schools with more poorly-funded libraries averaged 62 to 67 percent scoring proficient or advanced and 12 to 14 percent unsatisfactory (see Chart 2).

Chart 2
CSAP Reading Performance by School Library Expenditures: Grades 3–5, 2008



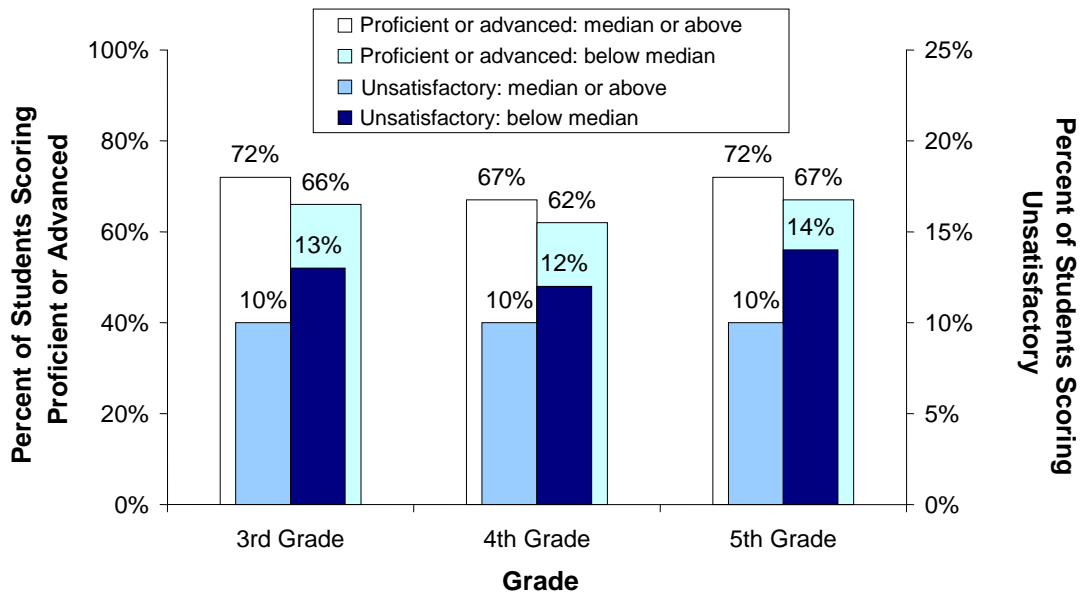
Library Visits

During the 2007-08 school year, the median weekly number of visits to an elementary school library was 151, or 0.42 per student. Elementary schools with libraries visited by students this often or more averaged better CSAP reading performance than those visited less often.

More students earned proficient or advanced reading scores and fewer students earned unsatisfactory scores where they visited their school libraries more often. Elementary schools with more frequently visited libraries averaged 67 to 72 percent of students scoring proficient or advanced and 10 percent scoring unsatisfactory. Schools with less frequently visited libraries averaged 62 to 67 percent scoring proficient or advanced and 12 to 14 percent unsatisfactory (see Chart 3).

School Librarians Help Students Achieve Standards

Chart 3
CSAP Reading Performance by Individual
Library Visits per Student: Grades 3–5, 2008



When school librarians collaboratively plan and co-teach with classroom teachers, teachers have said about this experience, “students were excited and engaged,” “all students were successful,” and “for my struggling students, this allowed them to do a large project along with the rest of the class and still work at their own level.”

Nancy White, 21st Century Learning & Innovation Specialist,
 Academy School District 20

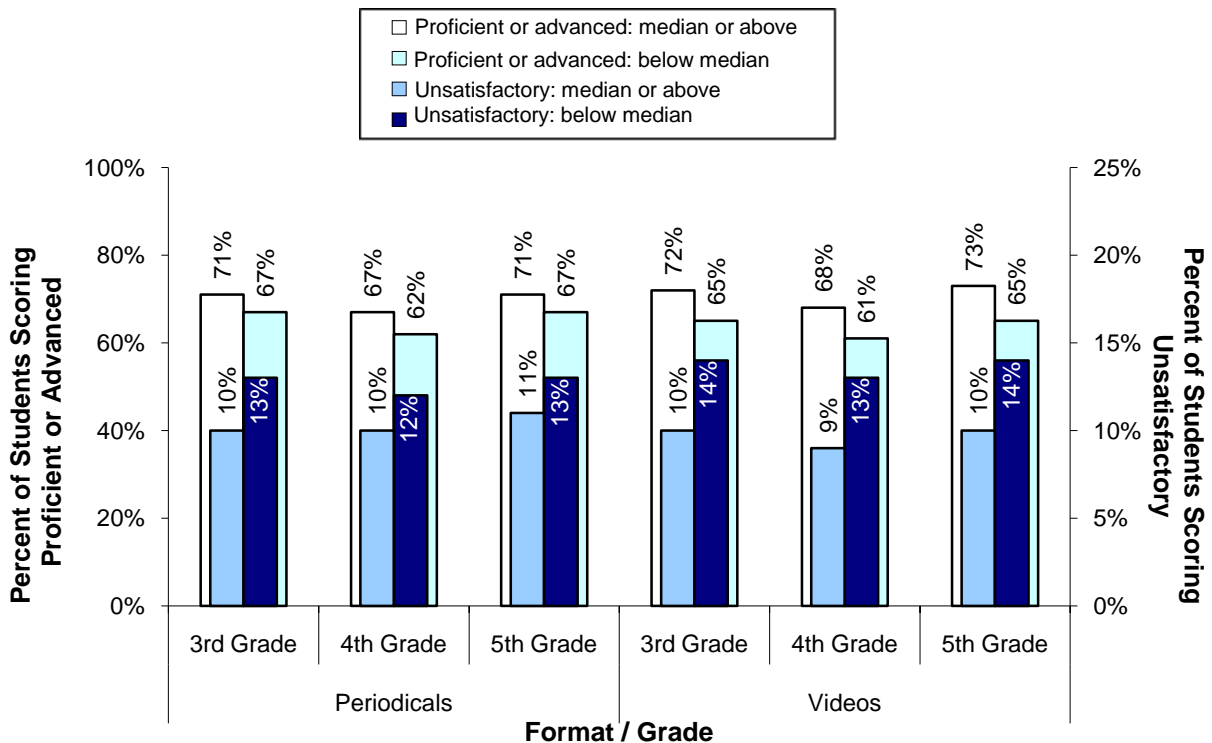
Periodical and Video Collections

During the 2007-08 school year, the median elementary school library held 9 current periodical subscriptions and 150 videos (i.e., VHS and DVD). Elementary schools with this many items in each format or more averaged better CSAP reading performance than those with smaller collections in those formats.

More students earned proficient or advanced reading scores and fewer students earned unsatisfactory scores where their school libraries held larger periodical and video collections. Elementary schools with larger library collections in these formats averaged 67 to 73 percent of students scoring proficient or advanced and 9 to 11 percent scoring unsatisfactory. Schools with smaller library collections averaged 61 to 67 percent scoring proficient or advanced and 12 to 14 percent unsatisfactory (see Chart 4).

School Librarians Help Students Achieve Standards

Chart 4
CSAP Reading Performance by Size of
Periodical and Video Collections: Grades 3-5, 2008



Our district knows the importance of licensed teacher librarians and the critical role they play in developing students and teachers for the 21st Century. ... In collaboration with classroom teachers, the teacher librarians plan and co-teach to ensure that both content and educational technology/information literacy standards are mastered.

Mary Beth Bazzanella, Library Services Coordinator
 Jefferson County Public Schools

Elementary School Libraries and the Achievement Gap

Proportional differences in the impact of school librarians on the lowest achievers indicates that school librarians at the elementary school level can play an important part in closing the achievement gap. While the raw difference in CSAP performance between schools with stronger and weaker library programs was larger for the highest achievers, the proportional difference was larger for the lowest achievers. For example, 6 percent more fourth-graders earned proficient or advanced reading scores when a librarian was present in the school. Conversely, 3 percent more fourth-graders earned unsatisfactory scores in the absence of a librarian. Proportionally, however, the proficient-or-advanced difference was 9.5 percent, while the unsatisfactory difference was 33.3 percent. A similar pattern exists with variables describing library funding, library use, and library collection size.

What does it mean that better school libraries are associated with a substantial difference in proficient-or-advanced CSAP reading scores and an even more substantial difference in

School Librarians Help Students Achieve Standards

unsatisfactory scores? Based on the findings of similar studies in addition to this one, the evidence suggests that school libraries can be a very effective tool in closing the achievement gap. The proportional difference in unsatisfactory scores for elementary schools with stronger and weaker library programs is more than three times the difference in proficient or advanced scores. This suggests that effective school libraries can be of even greater help to students who are struggling most than to those already performing at grade level or better. Indications are that all students can benefit from effective libraries, but that students who suffer most because of the achievement gap can also benefit most from the resources and services offered by libraries and librarians.

School Librarians Help Students Achieve Standards

Introduction

In 1993, publication of *The Impact of School Library Media Centers on Academic Achievement* put Colorado on the map in school librarianship by providing the strongest statistical evidence to date of the impact of school libraries and librarians on student success on achievement tests. In 2000, publication of *How School Librarians Help Kids Achieve Standards: the Second Colorado Study* expanded upon those earlier landmark findings and confirmed their ongoing relevance in the standards-based testing environment. This third Colorado study of the impact of school libraries and librarians on student test performance provides fresh evidence of the value of highly qualified librarians, especially at the elementary level where such positions are becoming increasingly vulnerable and, indeed, scarce. This new study also includes a first: it documents not only the impact of libraries and librarians on how high or low students' test scores are, it also examines the impact of libraries and librarians on low-performing as well as high-performing students on the CSAP tests—findings that will be particularly relevant to those concerned about closing the achievement gap between “have” and “have not” students.

Define Librarian

For purposes of this study, the term “librarian” is used to describe an individual who is employed by a Colorado school as a librarian and who is endorsed by the Colorado Department of Education (CDE) as a “Teacher Librarian,” a “School Librarian,” or a “Media Specialist.” These endorsements require additional coursework and specialized knowledge and may include having an MLIS. For an explanation of the difference between a teacher librarian and a school librarian, consult the endorsement rules for school library educators available at: <http://www.cde.state.co.us/cdelib/download/pdf/EndorsementRules.pdf>.

Data Sources

This study relied on three major sources of data: 1) the Library Research Service's 2007-08 annual survey of school libraries; 2) the CDE's 2008 school library staffing survey cross-tabbed with librarian endorsement status; and 3) the 2008 Colorado Student Assessment Program (CSAP) scores by school and grade level, also from CDE. From the latter, we acquired percentages of students in each school who scored proficient or advanced and unsatisfactory. These percentages were compared for schools with more and less of selected indicators of library resources and use.

Statistical Analysis Method

Comparison-of-means analysis was utilized to measure differences in test performance between schools with more and less of certain school library resources—staffing, collections, and expenditures—as well as library visits. Based on those variables, participating schools were divided into two groups. (Example: Schools with one or more full-time librarians and those with less than one full-time librarian.) Then, the percentage of students with advanced scores was averaged for each group, and the difference was subjected to a statistical test (the *t* test) to determine if that difference is statistically significant (i.e., non-random).

Explain Absolute vs. Proportional Percent Difference

In the comparison-of-means tables, two differences are reported: the absolute difference (simply labeled “difference”) and the proportional difference (labeled “percent difference”). To understand the distinction, consider a case where the two percentages of students earning

School Librarians Help Students Achieve Standards

proficient or advanced CSAP scores are 20% and 30%. The absolute difference between the two is 10%; but, the proportional difference is 50% (30 minus 20 equals 10, and 10 is half of 20). Talking about both such differences is important, though potentially confusing or counter-intuitive when the original figures are percentages themselves. The reader is advised to be aware of this distinction throughout the report. (Note that the proportional difference is calculated based on the displayed number of decimal places in the two means and the difference.)

School Librarians Help Students Achieve Standards

School Library Staffing

Differences in CSAP reading scores are associated with two measures of school library staffing: librarians and total library staff in full-time equivalents (FTE).

Students Scoring Proficient or Advanced

For elementary schools that have at least one full-time endorsed librarian, the percentage of third, fourth, and fifth grade students scoring proficient or advanced in reading is consistently higher than for schools with lower staffing levels – a 4 to 5 percent absolute difference and a 6 to 8 percent proportional difference (see Table 1).

Table 1: Percent of Students Scoring Proficient or Advanced in Reading on the Colorado Student Assessment Program (CSAP) by Library Staffing Level, Grades 3-5, 2008

Grade and Library Variables	Criterion	Percent of Students Scoring Proficient /Advanced on CSAP Reading			
		Criterion or above (N)	Below criterion (N)	Difference	Percent difference
3rd Grade					
Librarians (FTE)	1	72% (230)	68% (624)	4%**	6%
Total FTE	1.5	73% (122)	69% (732)	4%**	6%
4th Grade					
Librarians (FTE)	1	68% (229)	64% (628)	4%**	6%
Total FTE	1.5	69% (123)	64% (734)	5%**	8%
5th Grade					
Librarians (FTE)	1	72% (232)	68% (620)	4%**	6%
Total FTE	1.5	73% (120)	68% (732)	5%**	7%

** $p \leq .01$

When a school includes an endorsed librarian in its staffing, the librarian's role is a strong part of the teaching and learning in that school. Students benefit from the collaborative teaching of information problem-solving, inquiry, and critical thinking skills that the librarian and classroom teachers provide. These skills ensure that students are effective users of ideas and information, helping to close the achievement gap and to prepare the students for life-long learning.

Nance Nassar, School Library Senior Consultant, Colorado State Library

Students Scoring Unsatisfactory

Schools with more librarian staffing also tend to have a lower percentage of students scoring unsatisfactory in reading – a 2 to 3 percent absolute difference and a 15 to 25 percent proportional difference. A similar but even stronger pattern in scores can be seen in schools having at least one and a half FTEs (ideally, at least one librarian and support staff) – a 2 to 3 percent absolute difference and a 17 to 27 percent proportional difference (see Table 2).

School Librarians Help Students Achieve Standards

Table 2: Percent of Students Scoring Unsatisfactory in Reading on the Colorado Student Assessment Program (CSAP) by Library Staffing Level, Grades 3-5, 2008

Grade and Library Variables	Criterion	Percent of Students Scoring Unsatisfactory on CSAP Reading			
		Criterion or above (N)	Below criterion (N)	Difference	Percent difference
3rd Grade					
Librarians (FTE)	1	10% (230)	12% (625)	-2%	-17%
Total FTE	1.5	10% (122)	12% (733)	-2%	-17%
4th Grade					
Librarians (FTE)	1	9% (229)	12% (629)	-3%	-25%
Total FTE	1.5	8% (123)	11% (735)	-3%	-27%
5th Grade					
Librarians (FTE)	1	11% (232)	13% (621)	-2%	-15%
Total FTE	1.5	10% (120)	13% (733)	-3%	-23%

Relative Impact and Relationship to the Achievement Gap

Elementary schools with better-staffed libraries have a significantly higher percentage of students scoring proficient or advanced in reading and a significantly lower percentage of students scoring unsatisfactory. Based on the proportional differences reported above, the evidence indicates that library staff can have a positive impact on all students. In addition, the fact that proportional differences associated with unsatisfactory scores are so dramatic suggests that a well-staffed library can be especially important for the neediest students. These results indicate that school library staffing can play an important role in narrowing the achievement gap.

School Library Budgets

Differences in CSAP reading scores are associated with school library funding, both in terms of total library budgets and at the per student level.

Students Scoring Proficient or Advanced

Elementary schools with larger expenditures (and therefore more funding per student) tend to have a higher percentage of students scoring proficient or advanced in reading. Total library expenditures include funds for library materials as well as funds for other programs and services. For schools with total expenditures of \$4,200 or more, the percentage of third, fourth, and fifth grade students scoring proficient or advanced is consistently higher than for schools with a total expenditures lower than \$4,200 – a 6 to 7 percent absolute difference and a 9 to 11 percent proportional difference. The same pattern in scores is evident for schools in which per-student spending is at least \$10.53 (see Table 3).

Table 3: Percent of Students Scoring Proficient or Advanced in Reading on the Colorado Student Assessment Program (CSAP) by Library Expenditures, Grades 3-5, 2008

Grade and Library Variables	Median	Percent of Students Scoring Proficient/Advanced on CSAP Reading			
		Median or above (N)	Below median (N)	Difference	Percent difference
3rd Grade					
Total library expenditures	\$4,200	72% (185)	66% (183)	6%**	9%
Expenditures per student	\$10.53	72% (182)	66% (186)	6%**	9%
4th Grade					
Total library expenditures	\$4,200	68% (184)	62% (184)	6%**	10%
Expenditures per student	\$10.53	68% (181)	62% (187)	6%**	10%
5th Grade					
Total library expenditures	\$4,200	73% (183)	66% (181)	7%**	11%
Expenditures per student	\$10.53	72% (181)	67% (183)	5%**	7%

** $p \leq .01$

Students Scoring Unsatisfactory

Schools with larger expenditures also tend to have a lower percentage of students scoring unsatisfactory in reading. Those schools with total library expenditures less than \$4,200 have a higher percentage of students in the same grades scoring unsatisfactory than those with expenditures of \$4,200 or more – a 3 to 4 percent absolute difference and a 30 to 40 percent proportional difference. A similar pattern in scores can be seen in schools that spend \$10.53 or more per student – a 3 or 4 percent absolute difference and a 33 to 40 percent proportional difference (see Table 4).

School Librarians Help Students Achieve Standards

Table 4: Percent of Students Scoring Unsatisfactory in Reading on the Colorado Student Assessment Program (CSAP) by Library Expenditures, Grades 3-5, 2008

Grade and Library Variables	Median	Percent of Students Scoring Unsatisfactory on CSAP Reading			
		Median or above (N)	Below median (N)	Difference	Percent difference
3rd Grade					
Total library expenditures	\$4,200	10% (186)	13% (183)	3%**	30%
Expenditures per student	\$10.53	10% (183)	14% (186)	4%**	40%
4th Grade					
Total library expenditures	\$4,200	9% (185)	12% (184)	3%**	33%
Expenditures per student	\$10.53	9% (182)	12% (187)	3%**	33%
5th Grade					
Total library expenditures	\$4,200	10% (184)	14% (181)	4%**	40%
Expenditures per student	\$10.53	10% (182)	14% (183)	4%**	40%

** $p \leq .01$

Relative Impact and Relationship to the Achievement Gap

Elementary schools with larger total library expenditures have a significantly higher percentage of students scoring proficient or advanced in reading and a significantly lower percentage of students scoring unsatisfactory. The proportional differences reported above for library expenditures indicate that expenditures have a positive impact on reading achievement for all students. Additionally, the dramatic proportional differences associated with unsatisfactory scores indicate that well-funded libraries are especially important for the neediest students.

School Librarians Help Students Achieve Standards

School Library Visits

Differences in CSAP reading scores are associated with two measures of how frequently students visit the library: individual visits per week and individual visits per student.

Students Scoring Proficient or Advanced

Elementary schools with more individual library visits each week tend to have a higher percentage of third and fifth grade students scoring proficient or advanced in reading. When the number of individual visits per week is averaged out among the number of students, both levels see results. For schools with at least 0.42 individual visits per student, the percentage of third and fifth grade students scoring proficient or advanced is consistently higher than for schools with fewer than 0.42 individual visits per student – a 5 to 6 percent absolute difference and a 7 to 9 percent proportional difference (see Table 5).

Table 5: Percent of Students Scoring Proficient or Advanced in Reading on the Colorado Student Assessment Program (CSAP) by Library Visits, Grades 3-5, 2008

Grade and Library Variables	Median	Percent of Students Scoring Proficient/Advanced on CSAP Reading			
		Median or above (N)	Below median (N)	Difference	Percent difference
3rd Grade					
Individual visits per week	151	71% (208)	67% (211)	4%*	6%
per student	0.42	72% (210)	66% (209)	6%**	9%
5th Grade					
Individual visits per week	151	71% (207)	67% (207)	4%*	6%
per student	0.42	72% (206)	67% (208)	5%**	7%

* $p \leq .05$; ** $p \leq .01$

Our district knows the importance of licensed teacher librarians and the critical role they play in developing students and teachers for the 21st Century. Our teacher librarians are the identified leaders of Information Literacy and Technology Literacy, while supporting the combined efforts of Literacy Acquisition at the school level. In collaboration with classroom teachers, the teacher librarians plan and co-teach to ensure that both content and educational technology/information literacy standards are mastered. Your latest findings continue to support, validate and highlight the importance a strong library program plays in increasing student achievement.

Mary Beth Bazzanella, Library Services Coordinator
Jefferson County Public Schools

School Librarians Help Students Achieve Standards

Students Scoring Unsatisfactory

Schools with more individual visits per student each week also tend to have a lower percentage of students scoring unsatisfactory in reading. Those schools with fewer than 0.42 individual visits per student have a higher percentage of students in third and fifth grades scoring unsatisfactory than those with at least 0.42 individual visits per student – a 2 to 4 percent absolute difference and a 30 to 40 percent proportional difference. A similar pattern can be seen in schools with fewer than 151 individual library visits per week. The percentage of third and fifth graders in those schools scoring unsatisfactory in reading is higher – 2 percent absolutely and 18 percent proportionally – than in those schools with at least 151 individual visits each week (see Table 6).

Table 6: Percent of Students Scoring Unsatisfactory in Reading on the Colorado Student Assessment Program (CSAP) by Library Visits, Grades 3-5, 2008

Grade and Library Variables	Median	Percent of Students Scoring Unsatisfactory on CSAP Reading			
		Median or above (N)	Below median (N)	Difference	Percent difference
3rd Grade					
Individual visits per week	151	11% (209)	13% (211)	2%*	18%
per student	0.42	10% (211)	13% (209)	3%*	30%
5th Grade					
Individual visits per week	151	11% (208)	13% (207)	2%*	18%
per student	0.42	10% (207)	14% (208)	4%**	40%

* $p \leq .05$; ** $p \leq .01$

Relative Impact and Relationship to the Achievement Gap

Elementary schools with a higher number of individual library visits per week and per student have a higher percentage of students scoring proficient or advanced in reading and a lower percentage of students scoring unsatisfactory. Based on the proportional differences reported above, the evidence indicates that individual visits to the library have a positive impact on students, and that encouraging students to visit the library on their own and making time for this activity may help narrow the achievement gap.

School Librarians Help Students Achieve Standards

School Library Collections

Differences in CSAP reading scores are associated with the number of periodicals and videos in elementary school library collections.

Students Scoring Proficient or Advanced

For each format, elementary schools with larger collections tend to have a higher percentage of students scoring proficient or advanced in reading. In those schools with at least 9 current periodical subscriptions, the percentage of third, fourth, and fifth grade students scoring proficient or advanced is consistently higher than for those schools with fewer than 9 periodical subscriptions – a 4 to 5 percent absolute difference and a 6 to 8 percent proportional difference. A similar, but even stronger pattern in scores can be seen in schools with at least 150 videos (VHS or DVD) in the library collection – a 7 to 8 percent absolute difference and an 11 to 12 percent proportional difference (see Table 7).

Table 7: Percent of Students Scoring Proficient or Advanced in Reading on the Colorado Student Assessment Program (CSAP) by Collection Size, Grades 3-5, 2008

Grade and Library Variables	Median	Percent of Students Scoring Proficient or Advanced on CSAP Reading			
		Median or above (N)	Below median (N)	Difference	Percent difference
3rd Grade					
Periodicals	9	71% (203)	67% (194)	4%*	6%
Videos	150	72% (211)	65% (175)	7%**	11%
4th Grade					
Periodicals	9	67% (205)	62% (193)	5%**	8%
Videos	150	68% (211)	61% (176)	7%**	11%
5th Grade					
Periodicals	9	71% (202)	67% (191)	4%*	6%
Videos	150	73% (203)	65% (180)	8%**	12%

* $p \leq .05$; ** $p \leq .01$

Students scoring unsatisfactory

Elementary schools with more periodicals and videos in the library also tend to have lower percentages of students scoring unsatisfactory in reading. Schools with fewer than 150 videos have higher percentages of students in grades three to five scoring unsatisfactory than those with 150 or more – a 4 percent absolute difference and a 40 to 44 percent proportional difference. Again, a similar pattern is evident in elementary schools with fewer than 9 current periodical subscriptions (see Table 8).

School Librarians Help Students Achieve Standards

Table 8: Percent of Students Scoring Unsatisfactory in Reading on the Colorado Student Assessment Program (CSAP) by Collection Size, Grades 3-5, 2008

Grade and Library Variables	Median	Percent of Students Scoring Unsatisfactory on CSAP Reading			
		Median or above (N)	Below median (N)	Difference	Percent difference
3rd Grade					
Periodicals	9	10% (204)	13% (194)	3%*	30%
Videos	150	10% (211)	14% (176)	4%**	40%
4th Grade					
Periodicals	9	10% (206)	12% (193)	2%*	20%
Videos	150	9% (211)	13% (177)	4%**	44%
5th Grade					
Periodicals	9	11% (203)	13% (191)	2%*	18%
Videos	150	10% (203)	14% (181)	4%**	40%

* $p \leq .05$; ** $p \leq .01$

Relative impact and relationship to the achievement gap

Elementary schools with more periodicals and videos have a significantly higher percentage of students scoring proficient or advanced in reading and a significantly lower percentage of students scoring unsatisfactory. Based on the proportional differences discussed above, the evidence indicates that the numbers of periodicals and videos in the library can have a positive impact on students' literacy skills. The fact that proportional differences associated with unsatisfactory scores are so dramatic suggests that strong periodical and video collections are especially beneficial for the neediest students.

This study provides evidence that a strong school library program led by a certified and endorsed school librarian can reduce the achievement gap and address the needs of struggling students. This is exciting news for schools that are trying to identify strategies that work! To achieve equity in education, this study suggests to me that schools without certified and endorsed school librarians should get one, and provide the necessary funding and opportunities for student access to library staff and resources. In my school district, it is evident why this works. When school librarians collaboratively plan and co-teach with classroom teachers, teachers have said about this experience, "students were excited and engaged," "all students were successful," and "for my struggling students, this allowed them to do a large project along with the rest of the class and still work at their own level." Collaborating with the school librarian helps create powerful learning opportunities for kids!

Nancy White, 21st Century Learning & Innovation Specialist
Academy School District 20

School Librarians Help Students Achieve Standards

Conclusion

This is the third Colorado study of the impact of school libraries and librarians on academic achievement, and the second one to examine their impact on student performance on the Colorado Student Assessment Program (CSAP) tests.

The findings of this latest study are consistent with those of the two previous studies on several key points. Students tend to perform better on achievement tests where school libraries have:

- More full-time equivalents (FTEs) of staffing;
- Larger collections of periodicals and instructional videos;
- Better-networked online resources made accessible via computers in the library as well as in classrooms, labs, and offices;
- Higher total library expenditures; and
- Heavier use, as indicated by both library visits and circulation.

Between 2000 and 2009, similar findings have been generated by studies in 17 other states (Alaska, California, Florida, Illinois, Indiana, Iowa, Massachusetts, Michigan, Minnesota, Missouri, New Mexico, New York, North Carolina, Oregon, Pennsylvania, Texas, and Wisconsin) as well as the Canadian province of Ontario. Many of these studies also present evidence that the relationships between library programs and test performance cannot be explained away by other school or community conditions.

More recent studies in Indiana and Idaho suggest some of the day-to-day dynamics of school life that may account for these relationships. In Idaho (the latest of these studies), higher test scores tended to be earned by students whose principals felt that their schools did an excellent job of teaching information, communication, and technology (ICT) literacy. In turn, such self-assessments were more likely at schools where principals valued as essential (or at least desirable) several policies and practices associated with fully credentialed librarians:

- Flexibly scheduled access to the library,
- Collaboration between the school librarian and classroom teachers in the design and delivery of instruction,
- Provision of in-service professional development opportunities to teachers by the librarian,
- Appointment of the librarian to key school committees,
- Regular meetings between librarian and principal, and
- Addressing the instructional role of the librarian during teacher hiring interviews.

Credentialed librarians were two to three times more likely to report engaging in most of these activities at least weekly than others deputized to run the library.

Such findings in other states suggest that exploring the prevalence of similar policies and practices in Colorado might shed further light on the value of school libraries and librarians and why they are associated so consistently with student test performance.