Executive Summary

About the Study

Using 2011 data from a Pennsylvania State Board of Education school library survey and test score data from the Pennsylvania Department of Education, this study explored:

1. Relationships between selected school library infrastructure components and Pennsylvania System of School Assessment (PSSA) Reading and Writing test scores of students
2. Perceptions of administrators, teachers, and librarians about libraries and librarians and the relationships between those perceptions, academic standards, and PSSA scores
3. Estimated statewide costs of school library infrastructure components found to have a positive association with academic standards and student achievement

This study builds on two decades of research about the impact of school libraries and librarians which is summarized by Mansfield University’s School Library Impact Studies Project found at: http://library.mansfield.edu/impact.asp. This new Pennsylvania study, funded by the federal Institute of Museum and Library Services (IMLS) was conducted in three phases.

Phase 1: School Libraries and PSSA Scores

On October 5, 2010, the Pennsylvania House of Representatives unanimously adopted a resolution requesting that the State Board of Education conduct a survey of school libraries in Pennsylvania. The survey was implemented in Spring 2011 and the data were analyzed. Of 500 school districts, 389 districts (78%) participated in the survey, and, of the 2,970 schools in those districts, 2,180 schools (73%) responded. Of 141 charter schools, 22 (16%) responded, and of 14 Comprehensive Career and Technical Centers (CTCs), two (14%) responded. Nearly two-thirds of responding schools are elementary schools. More than 15% of the schools represent middle-school grades and 16% represent high schools.

The Data & Its Analysis

Data drawn from the Pennsylvania library survey by the RSL Research Group (contractor for this IMLS-funded study) include:

- Two measures of library staffing: whether or not the school has a certified librarian working 35 hours per week or more, and one meeting the additional condition of having at least 20 hours per week of library support staff
- One indicator of library spending: whether or not the school spends $11 or more per student per year
- Three measures of digital resources: the number of library computers less than five years old, any access to databases, and any access to e-books
- Three measures of library collections: whether or not the school has 12,000 or more book volumes, 150 or more video titles, and any audio titles
Three measures of library access: whether or not the school offers flexibly scheduled access to the school library, has 21 or more group library visits per week, and is open beyond the regular school day (i.e., before and/or after school hours).

These data from the Pennsylvania survey were then merged with 2010 – 11 PSSA Reading and Writing scores, and the results analyzed. (Reading scores are for grades 3 through 8 and grade 11, and Writing scores, for grades 5, 8, and 11.) PSSA scores for students at schools with more and less, or any and none, of the above-mentioned library resources were compared.

The nature of the data available for this study makes it a stronger one than its 2000 predecessor and a “first” in two respects:

- For the first time in Pennsylvania, this study examines directly the differences in both PSSA Reading and Writing scores for students in schools with and without specific levels of selected library resources.
- For the first time in any state, this school library impact study examines test scores for specific cohorts (or sub-groups) of students, including students who are Economically Disadvantaged, students who are Black, students who are Hispanic, and students with Individualized Education Programs (i.e., students with disabilities). Findings about these students provide evidence that librarians and libraries can play substantial roles in helping to close achievement gaps for such students.

**Key Findings**

When students with and without access to various library resources are compared, the following statistically significant relationships are revealed:

- Consistently, for all 12 library measures, students with access to these resources—a better-staffed, funded, equipped, and stocked, and more accessible school library—are more likely to score Advanced and less likely to score Below Basic on the PSSA Reading and Writing tests.

- A general finding of this phase is that the impact of school library programs is more pronounced proportionally for Writing than Reading scores. From the perspective of 21st Century Learner standards, this is not surprising. A 21st Century Learner must be a producer as well as a consumer of information. For Writing, students with access to libraries that have more of all of these resources are, in most cases, two to five times more likely to score Advanced than students without well-resourced libraries.

- Generally, these patterns were found for All students as well as students who are Economically Disadvantaged, Black, and Hispanic and who have Individualized Education Programs (IEPs). In other words, these findings cannot be explained away by such socio-economic or demographic factors. (Detailed findings for these student cohorts are included in the full report.) Indeed, quite often, the PSSA results associated with stronger library programs are better for these students than for students generally. The relationship between test scores and quality school library programs, therefore, is not an incidental statistical artifact of more prosperous communities or families.
Advanced PSSA Reading Scores for All Students With & Without
Selected Library Infrastructure Components

Advanced PSSA Writing Scores for All Students With & Without
Selected Library Infrastructure Components

*RS = not significant for All students, but significant for students at each grade level*
How Much of a Difference?

How much of a difference can stronger school library programs make? This phase of the study is based on a snapshot of data about schools with stronger and weaker library programs, not an examination of the consequences of changes in library programs over time. Still, the findings indicate the kinds of differences that might be made by improving school library programs:

- On average, almost nine percent (8.6%) more students score Advanced in Reading where students have a full-time, certified librarian with support staff than where they have a full-time, certified librarian alone. Further, almost eight percent (7.9%) more students score Advanced in Reading where students have a full-time, certified librarian than where they do not (i.e., anything from a part-time librarian to none at all).

- On average, the percentage of students scoring Advanced in Writing is two and a half times higher for schools with vs. schools without a full-time, certified librarian (13.2% vs. 5.3%). Similarly, the average percentage of students scoring Advanced in Writing is almost twice as high for schools with a full-time, certified librarian with support staff vs. those with a full-time certified librarian alone (16.7% vs. 9.2%).

These findings suggest that stronger library programs—especially those that are staffed appropriately—can contribute to the success of all students and can make an impressive difference for students with the greatest needs.

The findings of the first phase of this study are detailed in Chapters 2 through 6.

Phase 2: School Libraries, Academic Standards and PSSA Scores

This is the first statewide school library impact study to examine real-world data about the contributions of librarians and libraries to teaching two important sets of academic standards: the American Association of School Librarians’ Standards for the 21st Century Learner (2007) and the Common Core State Standards Initiative’s Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects (2010). The latter document was adopted by the Pennsylvania Department of Education in 2010. In the absence of standardized assessment instruments for these two sets of standards, this study draws on the perceptions of educators themselves and verifies those perceptions by correlating them with PSSA Reading and Writing scores.

In March and April 2012, as part of this study, surveys of three educator groups were designed and administered online, and useable responses were received from 295 administrators, 950 teachers, and 597 librarians.

The Data & Its Analysis

When surveyed, educators were asked to address key library practices and activities as well as the roles played by librarians.

Administrators were asked how much they value library access being scheduled flexibly, teachers and librarians collaborating on instruction, librarians providing in-service professional development to their teachers, librarians and principals meeting regularly, librarians being appointed to school committees, and collaboration with librarians being addressed in teacher evaluations. They were asked to respond to these practices on the following scale: “essential”, “highly desirable”, “desirable”, “unnecessary” or “don’t know/need more information”. They were also asked to identify which of a dozen roles they believe librarians should play.
Teachers and librarians were asked to report how often they engage in the following activities: classes or other groups of students visit the library on a flexible schedule, teachers accompany students to the library, teachers invite the librarian to their classrooms, teachers collaborate with their librarian on design and delivery of instruction, and the librarian helps teachers learn new information-seeking skills. They were asked to report the frequency of these activities on the following scale: “at least weekly”, “at least monthly”, “at least once a semester”, “at least annually”, or “rarely/never”. Teachers were also asked to identify which of a dozen roles they experience their librarians playing. Librarians were asked to anticipate the librarian roles their administrator and teacher colleagues would select.

All three educator groups were asked to assess the instructional role of their library programs in teaching two sets of academic standards: Standards for the 21st Century Learner (American Association of School Librarians, 2007) and Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects (issued by the Common Core State Standards Initiative and adopted by the Pennsylvania Department of Education in 2010). In the absence of rigorous assessment tools for these two sets of standards, educators were asked to provide these assessments on a standard “excellent”, “good”, “fair”, or “poor” scale.

These data were analyzed by cross-tabulating assessments of the library program’s role in teaching 21st Century Learner standards (“excellent” vs. less than excellent) with the following:

- How much administrators value key library practices (“essential” vs. less than essential)
- How often teachers and librarians report engaging in related activities (“at least weekly” vs. less often, or “at least monthly” vs. less often)
- Whether or not administrators consider desirable, teachers perceive, and librarians expect their principals and teachers to perceive librarians in each of several roles

A similar analysis is reported for librarians’ self-assessments of their role in teaching PA/Common Core standards related to English Language Arts, Reading and Writing in History/Social Studies, Science and Technical Subjects, and—longer-term—College and Career Readiness.

Finally, comparisons of these qualitative assessments to PSSA Reading and Writing scores validate that they are not the wishful thinking of educators.

**The Findings**

Generally, when educators value library practices as essential and report engaging in related activities more frequently, they are more likely to assess the library’s role in teaching 21st Century Learner standards as excellent.

- All three groups of educators associate flexible scheduling of library access and instructional collaboration between teachers and librarians with library excellence in teaching all four 21st Century Learner standards. Where such teaching is assessed as excellent, administrators are more likely to value flexible scheduling and teacher-librarian collaboration as essential and teachers and librarians are more likely to report them occurring at least weekly.

- Notably, for administrators and teachers, majorities—usually substantial ones—who support these practices and are engaged in related activities also assess the teaching of 21st Century Learner standards by library programs as excellent. Librarians, in assessing themselves, tend to be more modest. Still, their self-assessments are more likely to be excellent if they engage in these library activities more rather than less frequently.
For all three groups of educators, three librarian roles are associated with library programs whose teaching of all four 21st Century Learner standards they assess as excellent: In-service professional development provider, school leader, and technology instructor.

For all three educator groups, five additional librarian roles are associated with library programs whose teaching of one or more standards they assess as excellent: co-teacher, reading motivator, teacher, instructional resources manager, and instructional support.

Without exception, students are more likely to score Advanced on PSSA Reading and Writing tests where all three educator groups assess as “excellent” the library program’s role in teaching of all four 21st Century Learner standards.

Consistently, students are less likely to score Below Basic on PSSA Reading and Writing tests where the three educator groups assess as excellent library program teaching of Inquiry-Based Learning.

Notably, the positive association of excellent library program teaching of all four 21st Century Learner standards with Advanced Writing scores is dramatically higher than with Advanced Reading scores. Conversely, this proportionally greater association is echoed by librarians, specifically in regard to inquiry based learning. Students are dramatically less likely to score Below Basic in Writing where their librarians believe they are receiving excellent teaching of Inquiry-Based Learning.

What Kind of a Difference?

The second phase of this study offers substantial evidence of the unique contributions of library programs and librarians to what and how well Pennsylvania students learn. What students learn is how to learn more effectively, both now and in the future. According to the three groups of educators surveyed, libraries and librarians make a difference by teaching students learning skills that will serve them well throughout their lives.

Notably, this study finds that students who master these skills are more likely to also master basic learning codified in the new Common Core state standards being implemented in Pennsylvania and elsewhere. These relationships are especially strong for Common Core standards for English Language Arts and Reading and Writing for History and Social Studies. Indeed, when librarians report more frequent engagement in key library activities, they tend to self-assess as “excellent” their teaching of these Common Core standards—particularly taking the longer view toward College and Career Readiness.

Notably, educators’ perceptions of the impact of library programs are confirmed by their relationships to PSSA Reading and Writing scores. Those scores tend to be better

- Where educators assess as “excellent” library contributions to teaching 21st Century Learner standards and
- Where librarians self-assess as “excellent” their contributions to teaching PA/Common Core standards.

The findings of the second phase of this study are documented in more detail in chapters 7 through 10.

Phase 3: Estimated Costs of Selected Statewide School Library Infrastructure Components

Responding to this project’s surveys, administrators, teachers, and librarians report how highly they value proposed components of a statewide school library infrastructure based on their beliefs about their potential positive impact on student learning and academic achievement. (The response scale in the surveys was: essential, highly desirable,
desirable, not desirable.) In this analysis, the focus is on “essential” and “highly desirable” responses, which are
deemed to indicate very strong support from educator groups for particular components.

Three infrastructure components for which the three educator groups indicate strong endorsements include: a full-
time, certified librarian in every school; professional development for 21st century collaboration between librarians
and teachers; and a state e-resources collection.

- Overwhelming majorities—ranging from four out of five to nine out of 10 administrators, and nine out of
10 to virtually all teachers and librarians—endorsed these three infrastructure components: librarian
staffing, professional development, and e-resources.

- Nine out of 10 administrators and virtually all teachers and librarians strongly support having a full-time,
qualified librarian in every school.

- The hypothetical base cost of having a full-time certified librarian in every Pennsylvania public school is
estimated at $128.9 million for 2012-13. Based on 2010-11 data, the hypothetical cost of a librarian in
every school is the equivalent of about half of one percent of current (i.e., operating) expenditures for the
state’s public schools.

- Based on 2010-11 figures (the latest available), the hypothetical base cost of having a full-time certified
librarian in every public school in the state can be estimated at about one half of one percent of total school
expenditures.

### Hypothetical Base Cost of a Full-Time Certified Librarian in Every Pennsylvania School, 2010-11 to 2012-13

<table>
<thead>
<tr>
<th></th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average starting teacher salary</td>
<td>$40,043</td>
<td>$40,738</td>
<td>$41,569</td>
</tr>
<tr>
<td>Number of public schools</td>
<td>3,125</td>
<td>3,102</td>
<td>3,102 (estimated)</td>
</tr>
<tr>
<td>Hypothetical base cost of a full-time certified librarian in every school</td>
<td>$125,135,375</td>
<td>$126,369,276</td>
<td>$128,947,038</td>
</tr>
</tbody>
</table>

- Four out of five administrators and nine out of 10 teachers and librarians strongly support offering
professional development for 21st century collaboration for librarians and teachers as well as having a
state-negotiated and acquired collection of electronic/digital resources (e.g., databases, eBooks) to support
a 21st Century Skills curriculum.

- At its peak (2005-06), the POWER Library database program cost the state $1.772 million annually. In
2011-12, the state invested only 630,000 in such databases. Thus, returning to peak database funding levels
would require an additional $1.142 million annually.

- The costs of statewide databases have always been well under one dollar per student—now, only 36 cents
per student. Returning to peak funding of almost one dollar per student would be a dramatic economy of
scale, as state and vendor estimates of the per-school cost of current databases alone exceed $70 per
student.


<table>
<thead>
<tr>
<th>POWER Library Database Contracts, 2005-06 to 2011-12 Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER Library contracts, 2005-06</td>
</tr>
<tr>
<td>Number of databases, 2005-06</td>
</tr>
<tr>
<td>Enrollment, October 2005</td>
</tr>
<tr>
<td>Cost per student, 2005-06</td>
</tr>
<tr>
<td>POWER Library contracts, 2011-12</td>
</tr>
<tr>
<td>Number of databases, 2011-12</td>
</tr>
<tr>
<td>Enrollment, October 2011</td>
</tr>
<tr>
<td>Cost per student, 2011-12</td>
</tr>
<tr>
<td>POWER Library difference, 2005-06 to 2011-12</td>
</tr>
<tr>
<td>Enrollment, October 2011</td>
</tr>
<tr>
<td>Hypothetical additional cost per student, 2011-12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimated Annual Cost of 21st Century Professional Development for Librarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average statewide daily cost of a substitute teacher, 2011-12</td>
</tr>
<tr>
<td>Recommended number of annual days of professional development for librarians</td>
</tr>
<tr>
<td>Number of schools, 2011-12</td>
</tr>
<tr>
<td>Estimated annual cost of 21st century professional development for librarians</td>
</tr>
</tbody>
</table>

Detailed rationales for these cost estimates, including data sources, are reported in Chapter 11. (Believe it or not, that chapter number is a coincidence. We leave it to the reader to interpret.)

In addition to the above-mentioned components, most administrators, teachers, and librarians also value other school library infrastructure components for improving student learning and academic achievement, though to varying degrees: the state’s School Library Advisor, and intermediate unit and district library coordinators; a 21st century skills curriculum for which librarians would be responsible; and pre-service, induction, and continuing education focused on 21st century skills for administrators, teachers, and librarians. Costs of these infrastructure components are not estimated, as they implicitly assume a level of consistency in librarian staffing statewide that does not yet exist. This makes it difficult to impossible to make realistic estimates.