Chapter 1: Introduction

This study was commissioned by a partnership of organizations including the Pennsylvania School Librarians Association, the Education Law Center of Pennsylvania, and the Health Sciences Library Consortium. Contracted partners in the research include the University of Pittsburgh School of Information Sciences and the RSL Research Group based in Louisville, Colorado. The project was funded by a 2011-2012 National Leadership Grant for Research from the Institute of Museum and Library Services (IMLS).

The study has three phases:

1. The first phase examines the relationships between available data on library staffing, spending, digital resources, collections, and library access and Pennsylvania System of School Assessment (PSSA) Reading and Writing scores.

2. The second phase involved surveying three educator groups—administrators, teachers, and librarians—about library practices and activities, librarian roles, assessments of library program teaching of 21st Century Learner and PA/Common Core standards, and assessments of the need for specific components of a statewide school library infrastructure. Based on that data, it examines the extent to which standards assessments are related to library practices valued by administrators and activities reported by teachers and librarians. In turn, it examines the relationships between standards assessments and PSSA Reading and Writing scores.

3. The third phase drew on these research findings and utilized additional available data to estimate the statewide costs of selected components of a statewide school library infrastructure.

Previous Research

Specific research about the role of administrators and teachers in school library impact on student performance is sparse.

Past studies suggest that lack of common vision among education professionals about the role of the school library and librarian means that they cannot always work together effectively to ensure the library program contributes fully to the education of students.

Teachers’ attitudes toward the school library and the librarian influence their use of the library and willingness to collaborate with the librarian. These attitudes often reflect the general instructional culture of the school. Greater teacher-librarian collaboration has been linked to higher student achievement and evidence suggests that schools with a strongly cooperative instructional culture have teachers willing to include the librarian in more collaborative efforts.

Administrators set the tone for collaboration and cooperation in a school. But research suggests that they do not receive adequate training about how to maximize the contributions of their school libraries by encouraging a cooperative atmosphere, allocating adequate resources, setting schedules to facilitate collaboration between teachers and librarians, and offering staff development and training to support a collaborative atmosphere.


This 2007 Indiana study was also the first to include surveys of administrators, teachers, and librarians about school libraries and librarians and their impact on the teaching of information literacy skills. A subsequent study—Idaho School Library Impact Study - 2009: How Idaho Librarians, Teachers, and
Administrators Collaborate for Student Success—surveyed those three educator groups about school libraries and librarians and their impact on the teaching of Information, Communication, and Technology (ICT) literacy skills. Its full report is available online at: http://libraries.idaho.gov/doc/idaho-school-library-impact-study-2009. This study, in turn, updates that study by incorporating the full spectrum of 21st Century Learner standards.

For meta-analyses of past school library impact studies, the authors recommend two sources:

- **School Library Impact Studies Project**, a micro website of the School Library and Information Technologies program of Mansfield University—available online at: http://library.mansfield.edu/impact.asp.

The present study most nearly resembles the above-mentioned Indiana and Idaho studies.

**PSSA Reading & Writing Scores**

Academic achievement of students is represented in this study by 2010-11 Reading and Writing scores from the Pennsylvania System of School Assessment (PSSA). PSSA test results for grades 3 through 11 were obtained from the Pennsylvania Department of Education website at: http://www.portal.state.pa.us/portal/server.pt/community/school_assessments/7442.

Notably, Writing is tested only in grades 5, 8, and 11.

Throughout the first two phases of this study, the analysis focused on the percentage of students scoring Advanced and the percentage of students scoring Below Basic.

In the first phase, separate results are provided for selected student cohort, including All students, and the following subgroups, or as referred to in this report “cohorts” for which there were sufficient data for analysis: students who are Economically Disadvantaged (referred as “Poor” in charts throughout this report), students who are Black, students who are Hispanic, and students with –Individualized Education Programs (IEPs—i.e., students with disabilities). For that phase, separate results are also provided by school level, with grades 3, 4, and 5 representing elementary schools; grades 6, 7, and 8 representing middle schools; and grade 11 representing high schools. As the PSSA files report separate cases for each school for every student cohort and grade, library survey data were replicated and matched to all reported cases, thereby increasing the number of cases available for analysis beyond the number of schools responding to the library survey.

In the second phase, for which administrators, teachers, and librarians responded to surveys, PSSA Reading and Writing scores for grades 5, 8, and 11 are utilized. As responses from the three educator groups are analyzed separately, survey responses and test scores are duplicated only when there is more than one administrator, teacher, or librarian responding from a particular school, or when a school includes two or all three grade levels. District-level administrators are included in the analysis of library and librarian variables related to 21st Century Learner and PA/Common Core standards assessments; but not in the analysis of the relationships between standards assessments and PSSA scores, as they cannot be identified with a specific school’s scores.
School Library Study

On October 5, 2010, the Pennsylvania House of Representatives unanimously adopted House Resolution 987, encouraging the State Board of Education to survey school libraries in Pennsylvania. The Board developed a survey instrument in consultation with the Pennsylvania Department of Education and the Pennsylvania School Librarians Association. All school districts, charter schools and career and technical centers were asked to complete the survey electronically via SurveyMonkey. In July 2011, the State Board of Education contracted with the University of Pittsburgh to compile and clean-up the data, tabulate and analyze the results, and draft potential recommendations. The resulting report entitled the Pennsylvania School Library Study is available at http://www.portal.state.pa.us/portal/server.pt/community/research_reports_and_studies/19722/school_library_study/941391.

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.

While the University of Pittsburgh contractors contributed substantially to the clean-up of the data, additional clean-up was completed by the RSL Research Group contractors.

Data from the library survey included in this study includes:

- Two measures of library staffing: whether or not the school has a 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 per student or more.
- Three measures of digital resources: whether or not the school offers 10 or more and 40 or more 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 video titles, and any audio titles.
- Three measures of library access: whether or not the school offers flexibly scheduled access to the school library, 21 or more group library visits per week, and any library hours beyond the regular school day (i.e., before and/or after school hours).

Surveys of Librarians, Teachers, & Administrators

The project asked individual librarians from Pennsylvania schools to volunteer themselves, and to nominate their principals and up to two (2) other administrators, and up to five (5) teachers with whom they collaborate for participation in surveys during Spring 2012. Seven hundred forty-seven (747) librarians responded to that invitation, nominating themselves, their principals and other administrators, and one or more teachers.
Survey Content

Librarians who volunteered and educator colleagues they nominated were invited to participate in separate surveys of administrators, teachers, and librarians, as appropriate.

Administrators were asked to indicate:

- How much they value selected library practices
- The desired roles of librarians at their schools or in their districts
- How well they believe their library programs teach 21st Century Learner and PA/Common Core standards
- How highly they value specific components of a statewide school library infrastructure.

Teachers were asked to report:

- How often they participate in selected library activities
- The perceived roles of librarians at their schools or in their districts
- How well they believe their library programs teach 21st Century Learner and PA/Common Core standards
- How highly they value specific components of a statewide school library infrastructure.

Librarians were asked to report:

- How often they participate in selected library activities
- In what roles they believe their principals and teachers perceive them
- How well they believe their library programs teach 21st Century Learner and PA/Common Core standards
- How highly they value specific components of a statewide school library infrastructure.

Academic Standards

This study addresses two sets of academic standards, 21st Century Learner and PA/Common Core. While the former addresses specifically the current, broad conception of information literacy skills for which school librarians accept primary responsibility, the latter references the growing national consensus among the states about academic standards in a wide range of areas. In surveys, administrators, teachers, and librarians were asked to assess—and in the case of librarians, self-assess—the quality of their library programs’ teaching of these standards. In the absence of rigorous assessment tools for both sets of standards, these educators were asked to assess—on the common “excellent, good, fair, poor” scale—such teaching based on the impressions gathered from their own experiences.
21st Century Learner

In 2007, the American Association of School Librarians promulgated Standards for the 21st Century Learner. This document is available online at: http://www.ala.org/aasl/sites/ala.org.aasl/files/content/guidelinesandstandards/learningstandards/AASL_LearningStandards.pdf. Table 1 identifies the language in that AASL document with the shorter label utilized in this study to represent it more succinctly.

American Association of School Librarians
Standards for the 21st Century Learner

<table>
<thead>
<tr>
<th>PA Study Label</th>
<th>21st Century Learner Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inquiry-based learning</td>
<td>Inquire, think critically, and gain knowledge.</td>
</tr>
<tr>
<td>Informed decision-making</td>
<td>Draw conclusions, make informed decisions, apply knowledge to new situations, and create new knowledge.</td>
</tr>
<tr>
<td>Knowledge sharing</td>
<td>Share knowledge and participate ethically and productively as members of our democratic society.</td>
</tr>
<tr>
<td>Pursuing personal growth</td>
<td>Pursue personal and aesthetic growth.</td>
</tr>
</tbody>
</table>

PA/Common Core Standards


On July 1, 2010, the State Board of Education adopted the above document. The regulations providing for these new academic content standards took effect upon their publication in the October 16, 2010 edition of the Pennsylvania Bulletin. The transition to Common Core began during the 2010-11 school year (i.e., the focal year of the present study), with full implementation required by July 1, 2013.

Throughout the remainder of this report, these standards are referenced as PA/Common Core standards.

The PA/Common Core standards addressed in this study encompass English Language Arts as well as Literacy (i.e., Reading and Writing) in History and Social Studies, and Science and Technical Subjects. Cutting across these areas, the standards also embody a long-term goal for College and Career Readiness.
Statistical Analysis

Each of this study’s two major phases of research relied on particular techniques of statistical analysis.

Phase 1: School Library Study Data and PSSA Scores

Comparison-of-means analysis was utilized to measure differences in test performance between schools with more and less of selected school library infrastructure components related to staffing, resources spending, digital resources, library collections, and library access. School libraries were assigned to these comparison groups based on a common standard (e.g., a full-time certified librarian), the average for a particular component (e.g., 12,000 book volumes), or the presence or absence of a component (e.g., databases, e-books). 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). A similar analysis was conducted with Below Basic scores.

In previous school library impact studies, other statistical procedures—such as partial correlation and regression—were necessary to take into account various other school and community factors that might explain away the impact of libraries and librarians on test scores. In this case, such procedures were unnecessary, because separate PSSA scores were available for specific cohorts of students, including students who are Economically Disadvantaged, students who are Black, students who are Hispanic, and students with Individualized Education Programs (IEPs). By analyzing these test score data separately, this study took into account these socio-economic, racial/ethnic, and disability factors.

Phase 2: Educators, Academic Standards, and PSSA Scores

Three statistical procedures were utilized to analyze data from the three educator surveys.

First, simple frequencies—numbers and percentages of cases giving each possible response—were determined for each question.

Second, responses to each question were cross-tabulated with selected potential predictors of the answer to the question. For example, administrators’ self-assessments of library program teaching of 21st Century Learner standards are cross-tabulated with their answers to questions about how much they value collaboration between librarian and classroom teachers. Pearson’s chi-square was calculated for each of these cross-tabulation tables to determine if there is a statistically significant difference between the response from one group and another (e.g., administrators who valued collaboration between librarians and teachers in designing and delivering instruction as essential versus those who valued it as less than essential).

A third type of analysis was employed to get a sense of how much difference can be made in students’ PSSA scores by how administrators and teachers interact with and are perceived by their libraries and librarians, and how librarians interact with and believe they are perceived by their educator colleagues. Comparison-of-means analysis was utilized to measure differences in test performance between schools where members of these three groups expressed different perceptions. Based on those perceptions of libraries and librarians, participating schools were divided into two groups. (Example: Schools where administrators expressed the belief that librarian-teacher collaboration is essential versus schools where administrators reported considering such collaboration highly desirable, desirable, or even unnecessary.) 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).
For cross-tabulation and comparison-of-means analyses, the usual standards of statistical significance were utilized. In cross-tabulation tables, significance levels are reported in footnotes. In comparison-of-means tables, a single asterisk indicates that a finding is significant at the .05 level, while two asterisks indicate significance at the .01 level. Simply put, these “p” figures indicate that there are fewer than five and one chances, respectively, out of 100 that different findings would have resulted from a different sample.

Generally, for the sake of brevity and clarity, only consistent and statistically significant findings are reported. No findings are omitted because they were statistically or substantively negative. In fact, surprising and contradictory findings are acknowledged.

In the body of this report, statistical findings are reported graphically. Detailed statistical tables for the above-mentioned types of analyses are published in several appendices that are available from the Pennsylvania School Librarians Association (http://psla.org/index.php/contact-us, contact: Deb Kachel).

Presentation of Findings

The next five chapters of this report document the first phase of research, examining the relationships between PSSA Reading and Writing scores and available data on:

- School library staffing
- Resources spending
- Digital resources
- Collections
- Library access

The following three chapters document the second phase of research based on surveys of three educator groups: administrators, teachers, and librarians. The first two chapters in this section examine the two sets of standards:

- Standards for the 21st Century Learner
- PA/Common Core Standards.

For each set of standards, educators’ assessments of the library program’s teaching of each standard are examined in relation to educators’ perceptions of the value of key library practices, the frequency of key library activities, and the desired or perceived roles of librarians.

The third chapter in this section examines the association with PSSA Reading and Writing scores of educators’ assessments of library program teaching of 21st Century Learner and PA/Common Core Standards.

The penultimate chapter of the report documents the third phase of research, providing estimates of the costs of key components of a statewide school library infrastructure.

The final chapter summarizes the findings of all three phases of research and references other project activities, such as the series of statewide focus groups of key school library stakeholders.