Chapter 12: Conclusion

To conclude this report, this chapter summarizes conceptually this multi-phase study’s major findings and outlines a recommended action plan based on the original project proposal submitted to the Institute of Museum and Library Services (IMLS).

This project consists of three phases of research:

- A secondary analysis of available data about school libraries and their relationships to Pennsylvania System of School Assessment (PSSA) Reading and Writing scores
- Primary data collection and analysis about the perceptions of school library programs of administrators, teachers, and librarians and the relationships between those perceptions and their assessments of library program teaching of 21st Century Learner and PA/Common Core standards, and, in turn, the relationships between educators’ assessments of library program teaching of those two sets of standards and PSSA scores
- A compilation of available data from the Pennsylvania Department of Education and its Office of Commonwealth Libraries to estimate the costs of funding statewide selected components of a 21st century school library infrastructure

Phase 1 Research: Library Survey Data and PSSA Scores

This second Pennsylvania study of the impact of school library programs on student learning and academic achievement (2012) begins by replicating the first impact study of the state’s school libraries (2000). Immediately preceding this project, in 2011, the Pennsylvania state legislature requested that the Pennsylvania State Board of Education conduct a statewide survey of school library programs. Among other things, that survey gathered building-level data about:

- Librarian and library support staffing
- Library resources spending
- Digital resources (i.e., computers, databases, eBooks)
- Library collections (i.e., books, video, audio)
- Library access (i.e., flexible scheduling, more group library visits, library hours beyond the school day)

The initial phase of this project combines those data with 2011 PSSA Reading and Writing scores (i.e., percentages of students scoring Advanced and Below Basic). Reading was tested in grades 3 through 8 and 11, and Writing, in grades 5, 8, and 11. Detailed PSSA scores include separate results for All students; students who are Economically Disadvantaged (i.e., Poor), Black, and Hispanic; and for students with Individualized Education Programs (IEPs—i.e., those with disabilities) It should be noted that data on English Language Learners were insufficient for inclusion in this study. By analyzing the relationships between library program characteristics and PSSA scores for each of these student sub-groups (referred to as “cohorts” in this report), this phase of the study takes into account poverty, race and ethnicity, and disability status. Similarly, these relationships are examined at each grade level: elementary (grades 3 through 5), middle (grades 6 through 8), and high school (grade 11).

The results of the initial phase are quite consistent with the earlier Pennsylvania study as well as almost two dozen similar statewide studies conducted since 2000. Generally, test scores tend to be better (usually, more students score Advanced and fewer score Below Basic in both Reading and Writing) where library programs are:
Better-staffed (ideally, with a full-time, certified school librarian with support staff)

Better-funded to purchase local library resources

Better-equipped technologically (i.e., more locally purchased technology resources beyond those provided by the state)

Better-stocked with a variety of traditional print and non-print formats

More accessible to students, individually and in groups, during and beyond the school day

The findings of this first phase of research are remarkably consistent with those of many other school library impact studies conducted across the U.S. and in Ontario, Canada over the past two decades. The following table identifies the other studies with which the findings of this study’s first phase are consistent. It is adapted from a 2011 comprehensive review of those studies and their findings, visit the Mansfield University School Library Impact Studies website at: http://library.mansfield.edu/impact.asp.

### Previous School Library Impact Studies Reporting
### Significant Findings About Selected School Library Variables and Their Positive Association With State Academic Achievement Test Scores

<table>
<thead>
<tr>
<th>Library Variables</th>
<th>State/Province</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Library Staffing</strong></td>
<td></td>
</tr>
<tr>
<td>Number of hours of staffing at library</td>
<td>CA1, CA2, CO1, CO2, DE, IA, IL, IN, MA, MI, MN, NC, NM, NJ, OR, PA, TX, WI</td>
</tr>
<tr>
<td>Certified school librarian</td>
<td>CA2, DE, IA, ID, MA, MI, MN, MO, NJ, NY, OH, PA, WI</td>
</tr>
<tr>
<td>Full-time librarian</td>
<td>AK, CA2, CO3, IA, IN, MA, MI, MN, NJ, OH, ON1, ON2, OR, PA, WI</td>
</tr>
<tr>
<td>Support staff</td>
<td>CA2, DE, IA, MA, NJ, OH, ON1, OR, PA, TX, WI</td>
</tr>
<tr>
<td><strong>Library Spending</strong></td>
<td></td>
</tr>
<tr>
<td>Library expenditures (total and/or per student, and not limited to library resources spending)</td>
<td>CA1, CA2, CO1, CO2, CO3, DE, IA, IL, IN, MA, MA, MI, MN, NC, NJ, NM, ON2, OR, PA, TX, WI</td>
</tr>
<tr>
<td><strong>Digital Resources</strong></td>
<td></td>
</tr>
<tr>
<td>Networked computers in the library for student use (total, not just those less than 5 years old)</td>
<td>AK, CA1, CA2, CO2, DE, IA, IL, IN, MI, MO, NJ, NM, OH, OR, PA, TX, WI</td>
</tr>
<tr>
<td>Access to licensed databases</td>
<td>CO3, IA, IL, IN, MA, MI, MO, NM, ON1, OR, TX, WI</td>
</tr>
<tr>
<td><strong>Library Collections</strong></td>
<td></td>
</tr>
<tr>
<td>Print volumes (total and/or per student)</td>
<td>CA2, CO1, CO2, DE, IA, IL, IN, MA, MI, NJ, NM, OR, PA, TX, WI</td>
</tr>
<tr>
<td>Video collections</td>
<td>CO3, IA, MA, MI, NJ, NM, TX, WI</td>
</tr>
<tr>
<td>Audio materials</td>
<td>IA, MA, MI, NJ, NM, TX, WI</td>
</tr>
<tr>
<td><strong>Library Access</strong></td>
<td></td>
</tr>
<tr>
<td>Flexible scheduling of library access</td>
<td>CA1, CO2, DE, IA, ID, IL, IN, MI, MO, NJ, OH, ON2, WI</td>
</tr>
<tr>
<td>Library visits per week individual as well as group)</td>
<td>CO2, IA, IN, MI, NC, NJ, NM, OR, PA, WI</td>
</tr>
<tr>
<td>Library hours open per week (total, not just beyond school day)</td>
<td>AK, CA2, IA, IL, IN, MA, MI, MN, MO, NC, NM, ON1, OR, PA, TX, WI</td>
</tr>
</tbody>
</table>

The major conclusion to be drawn from these findings is that there is overwhelming evidence that students are more likely to succeed academically where they have school library programs that are better staffed, better funded, better equipped, better stocked, and more accessible. Such library programs have the resources required to ensure that their schools provide the information-rich environments necessary to the academic success of their students.
This study does not stop at measuring the impact of “stuff” (i.e., tangible resources); it continues by examining the values, activities, and perceptions of three educator groups (i.e., administrators, teachers, and librarians) and how those aspects of the school culture support library program efforts to strengthen their students—and, indeed, their teachers—academically.

**Phase 2 Research: Educator Perceptions, Standards, and PSSA Scores**

This study makes a noteworthy contribution to the literature of school library impact studies, because—for the first time—it connects the dots between the teaching and learning associated with library programs, how well they strengthen school efforts to address 21st and PA/Common Core standards, and the ultimate performance benchmarks, state test scores on both Reading and Writing.

With limited exceptions, this study finds that administrators tend to assess library program teaching of *Standards for the 21st Century Learner* (sometimes referred to as 21st Century Learner standards in this report) and PA/Common Core standards as “excellent” when they value key practices of successful library programs.

Key library program practices are:

- Flexible scheduling of library access
- Librarians and teachers collaborating on instruction
- Librarians being in-service providers to their teachers
- Principals appointing librarians to key school committees
- Principals and librarians meeting regularly
- Principals addressing collaboration with the librarian in teacher evaluations

Similarly, this study finds that teachers and librarians tend to assess library program teaching of both sets of standards as “excellent” when they report more frequent engagement in key activities associated with successful library programs.

Key library program activities are:

- Classes and/or smaller groups of students visiting the library on a flexibly scheduled basis (i.e., as dictated by curricular and instructional needs rather than a fixed schedule)
- Teachers accompanying classes to the library
- Teachers inviting librarians to their classrooms
- Librarians and teachers collaborating on instruction
- Librarians helping teachers learn new information skills

21st Century Learner standards include: Inquiry-Based Learning, Informed Decision-Making, Knowledge Sharing, and Pursuing Personal Growth. (Note: These shorthand names for these four standards were created for this study, and do not come from the original standards publication.)
PA/Common Core standards examined in this study include English Language Arts and Reading and Writing for History/Social Studies and Reading and Writing for Science and Technical Subjects. In addition, overall reading and writing for college and career readiness was also examined, cutting across the above subject areas.

Further, this study finds that, generally, PSSA Reading and Writing scores tend to be better (i.e., more students scoring Advanced, fewer scoring Below Basic) where library program teaching of 21st Century Learner and PA/Common Core standards is deemed to be excellent (versus good, fair, or poor) by librarians, teachers, and administrators.

Over the past two decades, more than a dozen and a half studies—including this one—have found associations between the hours librarians report spending on selected activities and state test scores.

### School Library Impact Studies Reporting

**Significant Findings About Reported Incidence of Selected Librarian Activities and Their Positive Association With State Academic Achievement Test Scores**

<table>
<thead>
<tr>
<th>Librarian Activity</th>
<th>State/Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides flexibly scheduled access to library</td>
<td>CA1, CO2, DE, IA, ID, IL, IN, MI, MO, NJ, OH, ON2, PA2, WI</td>
</tr>
<tr>
<td>Provides in-service to teachers</td>
<td>AK, CA1, CA2, CO2, DE, IA, ID, IN, NJ, NM, OH, OR, PA1, PA2, TX, WI</td>
</tr>
<tr>
<td>Collaborates with teachers on instruction</td>
<td>AK, CA1, CA2, CO2, DE, IA, IL, IN, MI, NJ, NM, OH, ON2, OR, PA1, PA2, TX, WI</td>
</tr>
<tr>
<td>Meets regularly with principal</td>
<td>CA, CO2, DE, IA, ID, IN, NJ, NM, ON2, OR, PA2, TX, WI</td>
</tr>
<tr>
<td>Serves on key school committees</td>
<td>CA, CO2, IA, ID, IN, ON, OR, PA1, PA2, TX, WI</td>
</tr>
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</table>

Note: This table is excerpted from, and amends, the School Library Impact Studies Chart on the Mansfield University School Library Impact Studies Project website (link provided above).

In explaining the relationships between educator perceptions of school library programs, on the one hand, and student learning and academic achievement, on the other, this 2012 study confirms and builds upon the findings of earlier studies—specifically, a 2007 Indiana study and a 2010 Idaho study. Since 2007, this study and its two most similar predecessors have found related associations between the extent to which administrators value corresponding library practices, on the one hand, and, on the other, standards assessments (i.e., Information Literacy standards for Indiana and Idaho; 21st Century Learner standards for Pennsylvania) and/or state test scores (i.e., overall in Indiana, reading and language arts in Idaho, reading and writing in Pennsylvania).

With the exception of flexible scheduling in Indiana, where administrators value each of the practices listed below more highly, their students tend to be more successful academically, based on administrator assessments of standards teaching and/or state test scores.
School Library Impact Studies Reporting
Significant Findings About What Administrators Value in Library Programs and
Positive Associations With Standards Assessments And / Or Test Scores

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<thead>
<tr>
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<tbody>
<tr>
<td>Library access scheduled flexibly</td>
<td>X</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Librarian and teachers collaborate on instruction</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Librarian provides in-service to teachers</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Librarian and principal meet regularly</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Principal appoints librarian to key school committees</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
</tbody>
</table>

■ indicates a positive, statistically significant relationship between a practice valued more highly by administrators and standards assessments and/or state test scores
X indicates the absence of a positive, statistically significant relationship

This study and its immediate predecessor in Idaho identify librarian roles selected by both administrators and teachers that are associated with better standards assessments (again, information literacy for Idaho, 21st Century Learner for Pennsylvania) by the same educator groups.

■ Better standards assessments by administrators and teachers in both states are associated with three librarian roles: instructional support, school leader, and technology instructor.

■ The desirability of librarians playing the role of curriculum designer is associated with better standards assessments by administrators in both states.

■ Better standards assessments by teachers in both states are associated with four additional librarian roles: in-service provider, instructional resources manager, reading motivator, and teacher (and/or co-teacher).

School Library Impact Studies Reporting Significant Findings About
Librarian Roles Selected by Administrators and Teachers and
Positive Associations With Standards Assessments

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<th></th>
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<tbody>
<tr>
<td><strong>Curriculum designer</strong></td>
<td>■</td>
<td></td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>In-service professional development provider</strong></td>
<td>■</td>
<td></td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>Instructional resources manager</strong></td>
<td>■</td>
<td>■</td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>Instructional support</strong></td>
<td>■</td>
<td>■</td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>Reading motivator</strong></td>
<td>■</td>
<td></td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>School leader</strong></td>
<td>■</td>
<td>■</td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>Teacher or co-teacher</strong></td>
<td>■</td>
<td></td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>Technology instructor</strong></td>
<td>■</td>
<td>■</td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>Technology troubleshooter</strong></td>
<td>■</td>
<td></td>
<td>■</td>
<td></td>
</tr>
<tr>
<td><strong>Tutor of at-risk students</strong></td>
<td>■</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Website manager</strong></td>
<td>■</td>
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</table>
Phase 3 Research: Estimated Costs of Selected Statewide Infrastructure Components of 21st Century School Library Programs

In January 2012, a focus group interview of school library leaders identified 10 potential components of a statewide infrastructure to support 21st century school library programs. Those 10 components are:

- Full-time certified librarian (with school librarian certification) in every school
- Library coordinator (with school librarian certification) in every district
- Library coordinator (with school librarian certification) in every intermediate unit
- School Library Advisor (with school librarian certification) at Commonwealth Libraries, the State Library Agency in the Department of Education
- State-mandated and assessed 21st century skills curriculum for which librarians are responsible
- State-negotiated and acquired collection of electronic/digital resources to support a 21st century skills curriculum (e.g., databases, e-books)
- Pre-service, induction, and continuing education about librarian’s role in teaching 21st century skills for prospective librarians
- Pre-service, induction, and continuing education about librarian’s role in teaching 21st century skills for prospective teachers
- Pre-service, induction, and continuing education about librarian’s role in teaching 21st century skills for prospective administrators
- Professional development supporting collaborative teaching of 21st century skills for librarians and teachers

Overwhelming majorities of administrators, teachers, and librarians identified these three of these components as “essential”:

- Full-time certified librarian (with school librarian certification) in every school
- State-negotiated and acquired collection of electronic/digital resources to support a 21st century skills curriculum (e.g., databases, e-books)
- Professional development supporting collaborative teaching of 21st century skills for librarians and teachers

Using data from the Pennsylvania Department of Education, the Pennsylvania State Education Association, the Pennsylvania School Board Association, and HSLC/Access Pennsylvania, estimates of the statewide cost of these three components were made.

- The hypothetical cost of a full-time certified librarian in every school, based on the average starting salary for a teacher, is estimated at $125.1 million for 2010-11, $126.4 million for 2011-12, and $128.9 million for 2012-13. For 2010-11, this cost is the equivalent of about one-half of one percent of the current (i.e., operating) expenditures of Pennsylvania public schools—or about a nickel out of every $10 spent on public education.
The hypothetical cost of restoring the POWER Library statewide collection of electronic/digital resources to 2005-06 levels is an increase of $1.142 million over 2011-12 spending of $630,000—a total of $1.772 million. The hypothetical $1.142 million increase for 2011-12 would have been an additional 65 cents per student.

The hypothetical annual cost of 21st century professional development for librarians—two days per year to prepare for sessions with teacher colleagues during regular in-service days—is based on the average statewide daily cost of a substitute teacher for 2011-12, $86, so for that year, it would have been $533,544.

Other potential statewide infrastructure components have strong support from one or two of the three educator groups, but none is supported as strongly by all three groups as those mentioned above. These other components include:

- Library coordination: having a library coordinator in every district and intermediate unit and the School Library Advisor at Commonwealth Libraries, Pennsylvania Department of Education (though notably, the latter position is being restored)
- A 21st century skills curriculum
- Pre-service, induction, and continuing education on 21st century skills for educators

About This Research

This second school library impact study for Pennsylvania is the latest in a long line of studies—almost two dozen since 2000. It makes several noteworthy contributions to that literature:

- For the first time, the impact of library programs on selected student cohorts that tend to experience achievement gaps was examined directly. Where past studies relied upon counts of these students as control variables, this study used state test results for those particular groups of students (i.e., Economically Disadvantaged, Black, Hispanic, and Individualized Education Programs). As a result, the evidence is stronger than ever that library predictors of test scores cannot be explained away by demographic and socio-economic factors.

- This is the first statewide school library impact study to assess the roles of librarians and library programs in teaching 21st Century Learner and Common Core standards, and, in turn, the links between librarians and library programs teaching those standards and state test scores. This study provides the first empirical evidence that librarians actually do teach, and that what they teach both addresses academic standards and impacts students’ test scores.

- This is one of only a few studies to document the proportionally larger association of library factors with Writing than Reading scores. In the context of 21st Century Learner standards, this makes sense: successful students must be producers as well as consumers of information and knowledge.

- While librarians’ self-assessments of their excellence at teaching the two sets of academic standards are far more modest than the corresponding assessments of their administrators and teachers, they apply to both 21st Century Learner and Common Core standards, and are consistent with state test scores.

- Finally, this study documents empirically for the first time the very close associations between 21st Century Learner and Common Core standards. In particular, the evidence indicates that Inquiry-Based Learning provides students with a strong foundation of learning skills that will serve them well throughout their lives.
Recommended Action Plan, 2012-2014

As originally proposed to IMLS, this project had a three-year timeline. A National Leadership Grant in the Research category funded only the first year of that timeline—the study reported herein. The two additional years of activities, which involve building and mobilizing a statewide community partnership to support 21st century school library programs, were not funded. The following action plan is an update of the one included in the original proposal.

Building a Statewide Community Partnership, 2013

For this project—one that aspires to be a model for research and subsequent action nationwide—activities following the release of the research findings are absolutely critical to the project’s ultimate success. For that reason, they require additional funding from a new source and at least two full years following the end of IMLS National Leadership Grant funding.

The first post-grant year should focus on building a statewide community partnership to support the development of 21st century library programs in all Pennsylvania public schools.

In “town hall”-style meetings about 21st century learning, stakeholders should explore and assess 1) their understanding of 21st century skills, 2) their consensus about the infrastructure required for quality school library programs that teach them, and 3) steps each stakeholder group is willing to undertake, either on its own or in partnership with other stakeholders, to mobilize support and maintain the momentum needed to build needed infrastructure for 21st century school library programs throughout the state. These stakeholders should include (but not be limited to):

- School board members and administrators
- Classroom teachers
- Community leaders with a strong interest in public education, including parents of students; advocates for students with special needs; and government, business, and non-profit leaders

Potential participants in these “town hall”-style events should be nominated by the study’s advisory board, the boards of the organizations partnering on the project, and members of the year-one professional judgment panels and focus groups. Those who accept the invitation to participate in a “town hall” should receive copies of the reports on this project’s school library impact research. At the same time, they should receive copies of several key documents about 21st century skills, including:

- The report on the Pennsylvania State Board of Education’s survey of school library programs in the state
- reports on the quantitative and qualitative research conducted as part of this project
- IMLS’s *Museums, Libraries, and 21st Century Skills*
- AASL’s *Standards for 21st Century Learner*

These “town halls” should be scheduled as soon as possible after the release of the study report, and should be as numerous as funding permits to involve stakeholders in every region of the state. Participants should be asked to read the above-mentioned documents, and encouraged to discuss the implications of the documents for their organizations, before attending these events.

Likely questions to be used to frame the conversation with stakeholders at these events include:
What does the term “21st century skills” mean to you?

How should school library programs contribute to teaching 21st century skills?

What are the major obstacles to school library programs contributing in those ways?

What kind of infrastructure do school library programs need to overcome those obstacles?

What can your organization do to help develop a 21st century infrastructure for school library programs?

What might your organization do in partnership with other organizations to help develop a 21st century infrastructure for school library programs?

A detailed report on the findings of these “town halls” should be completed by the facilitators and available to the project advisory board and the boards of the organizations partnering on this study as soon as possible after the last event.

Mobilizing the Statewide Community Partnership, 2014 (and Beyond)

If the report on this research is not well-received by its sponsoring organizations and stakeholder organizations—if it does not provoke them to decision and action—the study will have been “just another school library impact study.” While the quantitative and qualitative analyses with which the project began constitute “purer” research, the “town hall”-style events that follow should shift the perspective of the study’s audiences from “pure research” to “applied research.” In turn, the mobilization activities that follow should to shift the perspective of the study’s community audiences from “applied research” to action.

The goal at this stage is to mobilize a statewide community partnership to support the development of 21st Century library programs in all Pennsylvania public schools.

In 2014 (and beyond), the project advisory board and the boards of the study’s sponsoring organizations should seek to engage public officials at state and local levels. They should encourage them to review the research findings and focus group and “town hall” input, hold hearings that involve a wide variety of community stakeholders (e.g., school librarians, classroom teachers, school board members and administrators, community leaders with a strong interest in public education), and develop and pursue their own action plans. It is hoped that such plans will mobilize support for realigning existing resources and acquiring new ones to provide the needed infrastructure for quality school library programs throughout Pennsylvania.