FAST FACTS
Recent Statistics from the Library Research Service

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Proof of the Power

A First Look at the Results of the Colorado Study ... and More!

The Latest Statewide Studies

During 1998 and 1999, three statewide studies of the impact of school library media centers on academic achievement have been conducted. The forthcoming reports on these studies are:

- **Information Empowered: The School Librarian as an Agent of Academic Achievement in Alaska**,
- **Measuring Up to Standards: The Role of Library Information Programs & Information Literacy in Pennsylvania Schools**, and
- **How School Librarians Help Kids Achieve Standards** (a.k.a. *the second Colorado study* or *Colorado II*).

The Information Power Model & Previous Research Findings

The Information Power model developed by the American Association of School Librarians (AASL) focuses on three major themes for library media (LM) programs—collaboration, leadership, and technology—and three major roles for library media specialists (LMSs)—learning and teaching, information access and delivery, and program administration.

The findings of previous research on this topic can be summarized by LMS role:

Learning & Teaching

Previous research demonstrates that academic achievement of K-12 students is higher where the LMS:

- is part of a planning/teaching team,
- teaches information literacy independently, and
- works one-to-one with students in a flexibly scheduled program.

Information Access & Delivery

Previous research also associates higher academic achievement with:

- a quality collection of books and other materials selected to support the school's curriculum and used by both teachers and students,
- state-of-the-art technology that is integrated into the learning/teaching and information-seeking processes, and
- cooperation between library media centers (LMCs) and other libraries, especially public libraries.

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Program Administration

Previous research has also established that higher academic achievement is associated with:

- LM programs that are staffed to play an integral role in the school (minimally, at least one LMS with at least one aide),
- principal support of the LM program and collaboration between classroom teachers and the LMS,
- information technology that extends the reach of the LM program into the school's classrooms and labs, and
- a well-organized, formally requested budget adequate to support these conditions.

Each of the three study reports will include a detailed analysis of the previous literature as well as an exhaustive bibliography.

Motivations for Further Research

With the above-mentioned facts well established by previous research, one might rightly ask why further research was necessary.

A prime motivation for the new studies was to confirm the findings of the original Colorado study, The Impact of School Library Media Centers on Academic Achievement. Both practitioners and policymakers want to know that those findings

- can be replicated using standards-based tests,
- hold up over time, and
- apply to other states.

In addition, all three of the new studies seek to expand on the original Colorado study by demonstrating the value of

- specific activities that define the LMS role,
- principal and teacher support,
- flexible scheduling, and
- technology as part of LM programs.

Samples

Between them the three new studies involve over 800 schools in three states, and the participating schools serve both elementary and secondary grades—both middle and high school levels.

The Alaska study includes 211 of the state's 461 schools—46 percent of the schools serving the three tested grades: 4, 8, and 11.

The Pennsylvania study includes 435 of the state's 1,691 schools serving three tested grades: 5, 8, and 11. The 435 participating schools constitute an 87 percent response rate from a 500-case sample.

There are 200 schools in the new Colorado study. These participants constitute a 67 percent response rate from a 300-case sample of the state's 1,178 schools serving two tested grades: 4 and 7. (Statewide standards-based testing at the high school level has not yet begun.)

School Library Surveys

Alaska's school libraries were surveyed in Fall 1998. Counterpart surveys in Colorado and Pennsylvania were conducted in Spring 1999. While there were some minor differences among these surveys, all three were based on Colorado's 1998 questionnaire, and all three addressed five common sets of issues:

- staffing levels,
- time spent on a variety of staff activities,
- collection holdings by format,
- usage levels, and
- available technology and its functionality.

Available Data

In addition to original data collection via the above-mentioned surveys, all three studies also relied heavily on available data, including:

- state reading test scores (various grades indicated above),
- community characteristics, such as its
  - level of adult educational attainment,
  - socio-economic differences (e.g., income levels, poverty status), and
  - racial/ethnic demography.
- school characteristics, such as
  - teacher-pupil ratio,
  - teacher characteristics (e.g., percent with master's degrees, average years of experience, average salary), and
  - student characteristics (e.g., racial/ethnic demography, those eligible for the National School Lunch Program-—an indicator of socio-economic status)

Successful Types of Library Media Predictors

Four major types of library media program data were found to be predictors of academic achievement in at least two, if not all three, states:

- level of LM program development (e.g., staffing level, collection size, program expenditures),
- staff activities related to the Information Power themes of leadership, collaboration, and technology,
- levels of LM program usage, and
- technology (e.g., school-wide networks providing access to licensed databases as well as the Internet/World Wide Web).

Alaska Findings

The Alaska study yielded five major predictors of academic achievement:

- level of librarian staffing,
- time spent by librarians
  - delivering information literacy instruction to students
  - planning cooperatively with teachers, and
  - providing in-service training to teachers.
- a collection development policy that addresses the issue of challenges or requests for reconsideration of materials,
- the potential for Internet connectivity (i.e., computers with modem capability and telecommunications lines), and
- a relationship with the local public library.

Notably, this study could only demonstrate the efficacy of librarians, because there were too few cases of schools with both a librarian and an aide.

See Figure 1 for a graphic representation of the relationships among these variables and academic achievement in Alaska.

Pennsylvania Findings

The Pennsylvania study also yielded five major predictors of academic achievement:

- the presence of both librarians and support staff,
- the level of library expenditures (excluding staff salaries),
- the presence of rich collections of print and electronic information resources (i.e., books, periodical subscriptions, CD-ROM reference titles),
- the extent to which technology is utilized to extend the library information center's reach into the school's classrooms and labs (e.g., Access Pennsylvania, licensed databases, Internet/World Wide Web), and, pivotally,

- the extent to which information literacy is integrated in the school's approach to standards and curriculum (e.g., time spent by library information specialists meeting with principals; teaching cooperatively and independently; attending faculty, curriculum committee, and standards committee meetings; managing information technology).

See Figure 2 for a graphic representation of the relationships among these variables and academic achievement in Pennsylvania.

Colorado Findings

Five sets of predictors of academic achievement were yielded by the second Colorado study:

- library media program development,
- leadership,
- collaboration,
- technology, and
- flexible scheduling.

Library Media Program Development

As in the original Colorado study, a single factor encompasses all of the data about the library media program's level of development. Several characteristics of LM programs are strongly interrelated with each other, and, together, they constitute a positive, statistically significant predictor of academic achievement. A program's standing on this development factor is driven by

- the number of LMS and total staff per 100 students,
- the number of volumes per student as well as the number of print subscriptions and CD-ROM reference titles per 100 students, and
- LM expenditures per student.

Leadership

One of the major themes of Information Power is leadership. Library media specialists who exhibit leadership are more likely to have a positive effect on academic achievement. In Colorado, indicators of such leadership include time spent by the LMS:

- meeting with the principal,
- participating in faculty meetings and serving on standards and curriculum committees, and
- holding meetings of building and district level LM staff and participating in meetings of other LM professionals beyond the district (e.g., regional, state, and national conferences).

Collaboration

In Information Power, collaboration is billed above leadership, but the findings of this study indicate that leadership's impact on academic achievement is to be the prime mover behind collaboration with teachers. Where the LMS exhibits leadership, she or he is also more likely to:

- plan cooperatively with teachers,
- teach cooperatively with teachers as well as independently,
- provide in-service training to teachers, and
- manage the computer network that links the LMC, classrooms, and labs.

Technology

One of the strategic mistakes of the original Colorado study was to collect data on numbers of computers in or under the jurisdiction of the LMC alone. Of course, many computers used in instruction are located in classrooms and labs, and this time they were not left out. The only stipulation on which computers to count beyond those in the LMC was that they had to be networked to LM resources, such as the library catalog, licensed databases, and the Internet/World Wide Web. Statistical indicators of the importance of this kind of technology and the LM program's role in it include:

- the number of computers per 100 students,
- the number of computers providing access to licensed databases per 100 students, and
- the number of Internet-accessible computers per 100 students.

Flexible Scheduling

Previous research indicates that students perform at higher levels when their access to the LMC is not limited to regularly scheduled class visits. Students should be free to visit the LMC as their learning needs dictate. Ideally, some of these visits would still be in whole class groups, but others would be as part of smaller groups and individually. In reality, a fairly common practice is to schedule classes for regular LMC visits to provide planning and meeting time for teachers. All too often, during these periods, the LMC staff are little more than babysitters. An interesting, unexpected finding of this study is that individual student visits to the LMC correlate with test scores, but group visits—at least, group visits of the sort most common now—do not.

See Figures 3 and 4 for graphic representations of the relationships between and among these predictors and academic achievement in Colorado. There are two figures in order to indicate differences in these relationships for grades 4 and 7.

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Key Common Findings

While findings from the three states studied most recently vary somewhat, they share some key common findings:

- School library media specialists can and do exert a positive and significant effect on academic achievement.
- Principal support of the LM program and teacher collaboration with the LMS are critical to making the LM program an integral part of teaching and learning.
- For the LMS to be a pivotal player, support staff are essential. A professional LMS cannot do her or his job if tethered to the LMC.
- The LMS has a teaching role—both as a co-teacher of information literacy to students and as an in-service trainer of teachers.
- LM programs that contribute most strongly to academic achievement are those with the technology necessary to extend access to information resources beyond the LMC to classrooms and labs throughout the school.

Distinguishing Results

While the three studies share common findings, each also offers some distinguishing results.

- The Alaska study was the first to suggest the important role of the LMS as an information literacy teacher of students as well as an in-service training provider for teachers.
- The Pennsylvania study demonstrates that the synergy of LM staff, collections, and technology is most powerful where there is an integrated, collaborative approach to teaching information literacy.
- The Colorado study reveals that the relationship between leadership and collaboration is critical. Classroom teachers are more willing to collaborate with the LMS if she or he has taken the initiative to become an assertive, involved leader in the school. In addition, this study provides additional evidence linking flexibly scheduled LM programs with higher levels of academic achievement.

Controlling for School & Community Differences

As in the original Colorado study, each of these studies confirms that the relationships described above are not explained away by other school differences, such as:

- teacher-pupil ratio,
- teacher or student characteristics, and
- per pupil expenditures.

Likewise, these relationships cannot be explained away by community differences, such as

- adult educational attainment,
- socio-economic differences (e.g., income levels, poverty status), and
- racial/ethnic demography.

Recommended Actions

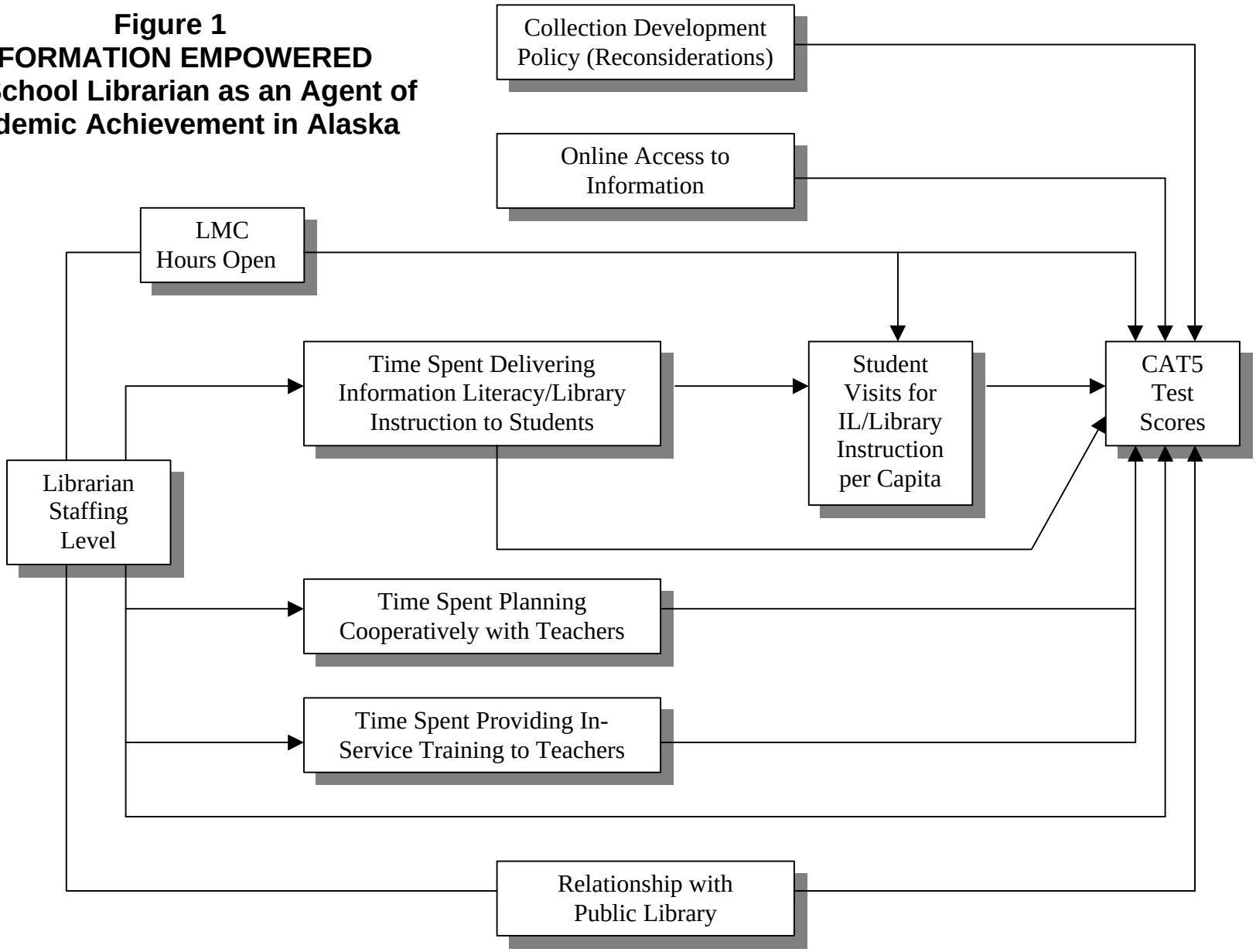
The combined weight of these three studies recommends several fairly obvious actions:

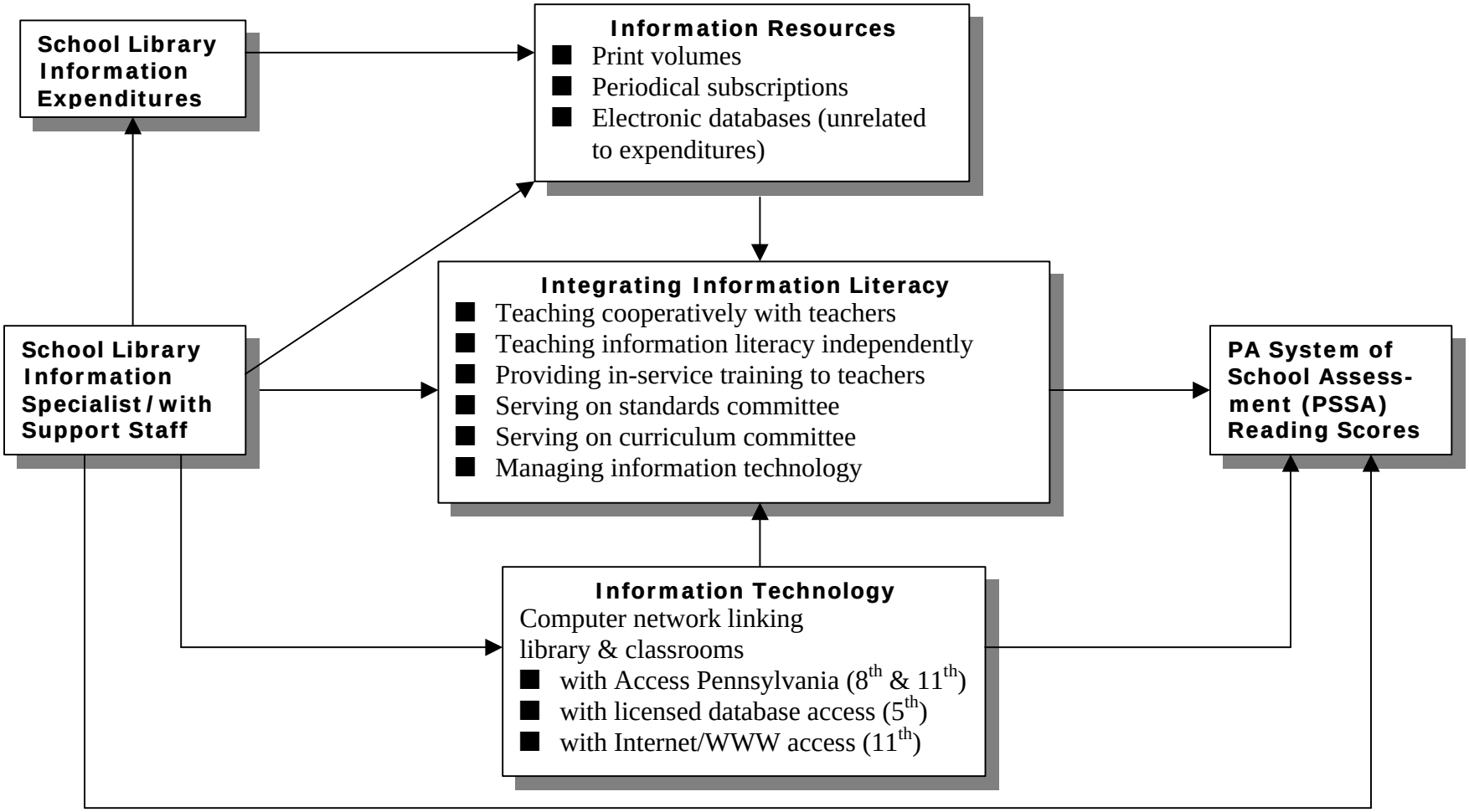
- Library media programs should be funded to have adequate professional and support staff, information resources, and information technology. Such conditions are necessary if not sufficient alone to generate higher levels of academic achievement.
- Library media specialists must assert themselves as leaders in their schools. Principals can do much to make this possible, including adopting policies and practices and communicating expectations that encourage LMSs to act as professional educators and classroom teachers to accept them as colleagues.
- The library media program cannot be limited to the library media center as a place. Just as LMSs must involve themselves in the design and delivery of instruction, technology must be used to make information resources available to teachers and students wherever they may be in the school.
- While Internet access is important, the LMS has an important role to play in ensuring that teachers and students have access to high-quality licensed databases from which current, authoritative information may be obtained.
- Wherever possible, schools should adopt policies of flexible scheduled access to the LMC. Available evidence indicates that LMCs that are reasonably accessible to students contribute more to academic achievement.

For More Information

For information about how to obtain copies of the reports for each of these studies, watch the Library Research Service web site, https://www.lrs.org, or contact the individual state library agencies. Also on the LRS web site, a PowerPoint presentation corresponding to this document is available. These slides were used in a session at the November 1999 joint conference of the American Association of School Librarians and the International Association for School Librarianship.

Figure 1
INFORMATION EMPOWERED
The School Librarian as an Agent of Academic Achievement in Alaska





Controlling for School Differences

- School expenditures per pupil
- Teacher characteristics (education, experience, salaries)
- Teacher/pupil ratio
- Student characteristics (race/ethnicity, poverty)

Controlling for Community Differences

- Adult educational attainment
- Race/ethnicity
- Families in poverty

Figure 2

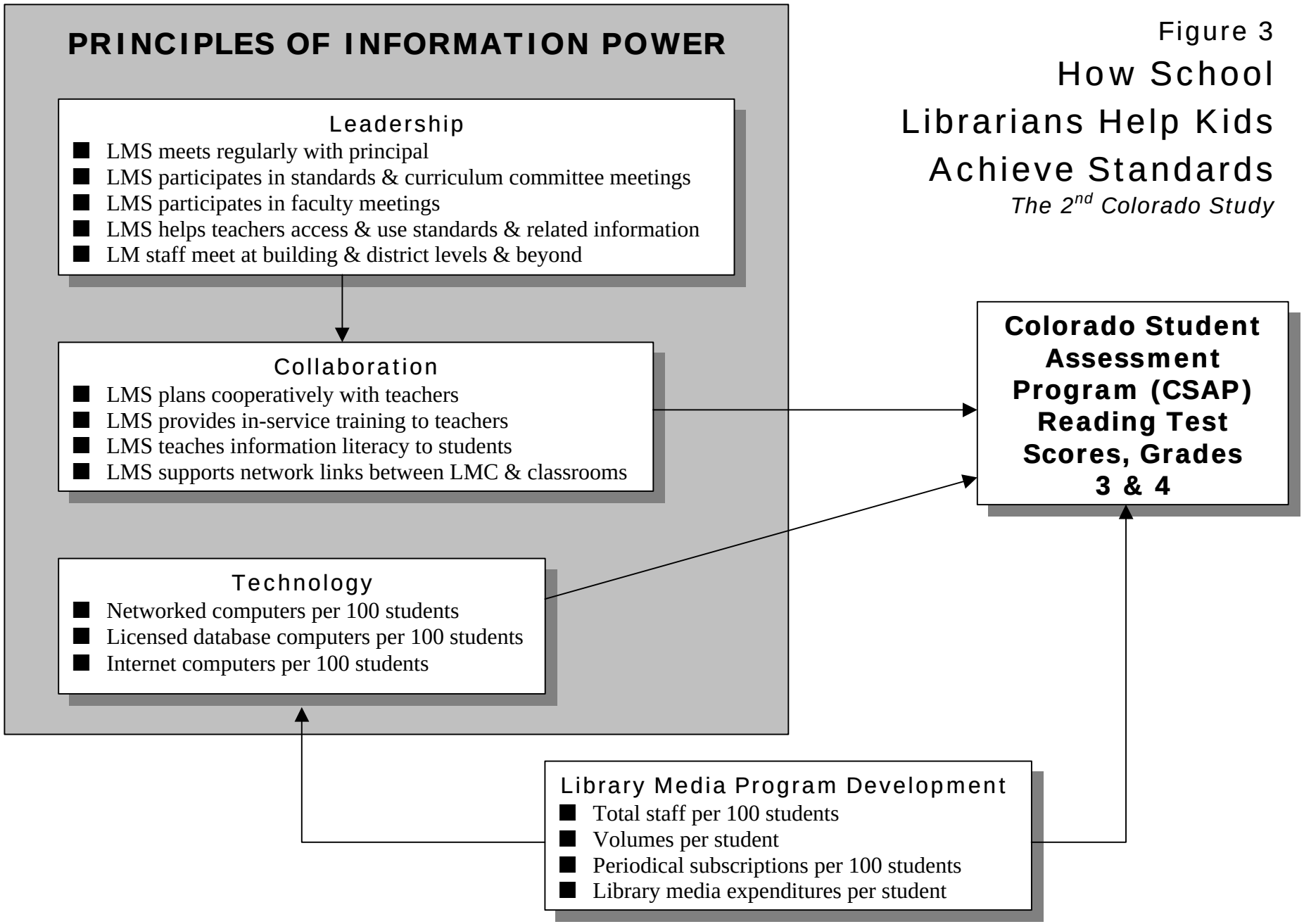
MEASURING UP TO STANDARDS

The Role of Library Information Programs & Information Literacy in Pennsylvania Schools

Figure 3

How School Librarians Help Kids Achieve Standards

The 2nd Colorado Study



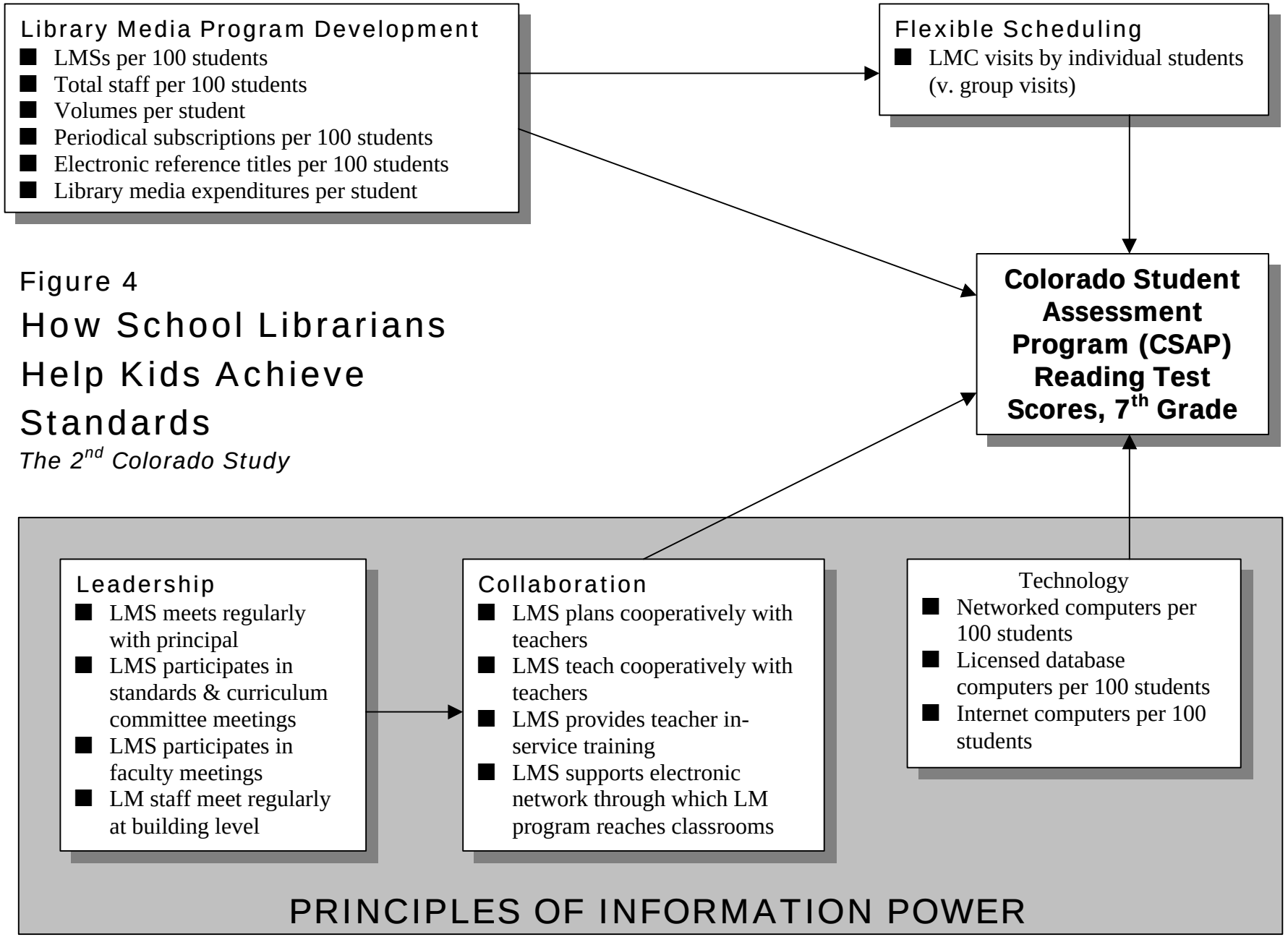


Figure 4

How School Librarians Help Kids Achieve Standards

The 2nd Colorado Study