Show-Me Connection

How School Library Media Centers Impact Student Achievement

2002 - 2003

Show-Me Connection

- **Sponsored by:**
  - Missouri Department of Elementary and Secondary Education
  - Missouri State Library
  - MASL
- **Thanks to:**
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  - Sara Parker
  - 782 Participants

Goal and Objectives

- To determine the relationship that school library media centers and services have on student achievement.
- Identify the specific components of school library media center services and Library Media Center Specialists that positively affect student achievement.
- To determine if other external factors affect student achievement.

States before Missouri

- Texas, Colorado, Pennsylvania , Alaska, Massachusetts, Iowa, Oregon
- **Yes** – School Library Media Centers affect student achievement
- Four major components
  - Program usage
  - Access to library resources
  - Resources (staffing level, collection size, program expenditures, technology)
  - Staff activities (leadership, collaboration, flexibility)

Missouri Student Achievement

- MAP index
  - % of students at different levels of proficiency in the different content areas

- Weighted by:
  - Number of reportable students (took test) in school grade and content area

- = Weighted Average MAP Index

Weighted Average MAP Index

- Determined for 2002 in three areas:
  - Overall = Reading + Non-Reading
  - Reading
  - Non-Reading – Social Studies, Communication Arts, Health & PE, Fine Arts, Mathematics, Science
- Statistical analyses found all three to be closely related and so used the Overall

Hypotheses

- Schools with Library Media Centers and Services display a positive relationship to the Weighted Average Map Index.

- Certain components of School Library Media Centers and Services have more of a relationship to the Weighted Average MAP Index than others.

- Although demographic characteristics have a high relationship to the Weighted Average MAP Index, they do not eliminate the positive relationships from the above two hypotheses.

Research Methodology

- Sample
- Core Data
- Questionnaire
- Community Demographics
- Data Aggregation
- Statistical Analyses

Sample

Core Data	Questionnaire Data
2,243 School Buildings	**782 School Buildings**

241 School Buildings that had all of data from both

Core Data

- School Building Level Data for 5 years
- Data Areas:
  - Student Data
  - Teacher/Administrator Data
  - Librarian Data
  - Library Media Data
  - Census of Technology

Questionnaire

- 8 sets of questions- 47 questions total
- Question Areas:
  - Respondent Information
  - Library Management
  - Library Staff
  - Service Hours
  - Staff Activities
  - Library / Loan Use
  - Library Technology
  - Library Collection

QUANTITATIVE RESOURCES

Community Demographics

- Census 2000
- At County Level not School District

Data Aggregation

- Core Data (CD) + Questionnaire (Q)
- Per Student due to differing school sizes
- Used to Create 11 Components of School Library Media Centers and Services

11 Components

– **Librarian Qualifications** (Education / Certification) – Q

– **Library Access** (Hours and Outside Access) – Q

– **Library Budget** (Total and Materials) – Q and CD

– **Library Space** (Square Footage and Seats) – CD

– **Library Staff Activities** (Learning and Teaching, Information Access and Delivery, Program Administration, Collaboration, Leadership) – Q

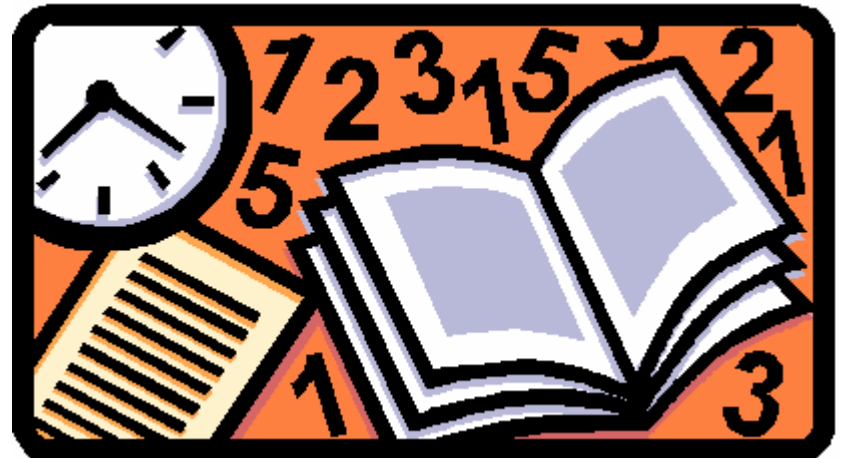– **Library Usage** (Type and Flexibility of Student Use) – Q

11 Components

- **Library Management** (Use of Budget, Collection Development Polices, Relationship to Public Library, Mission/Goals/Objectives, Coordinator) – Q

- **Library Media Center Holdings** (Books, Periodicals, Catalogs, Online) – Q and CD

- **Library Staffing** (Hours of Paid Staff) – Q

- **Summer Reading Program** (Offered / Cooperatively) – Q

- **Technology** (Availability and Usage) – Q and CD

Statistical Analyses

- Statistical Significance
  - Extent to which the sample features represent the corresponding features in the population
- Relationships
  - Bivariate Correlation
  - Multiple Regressions
  - Incremental Partial Correlation Method

Analysis Areas

❖ School Demographics

❖ Community Demographics

❖ School Library Media Center Services

❖ 11 Components

School Demographics
Analysis of significant items

Item	Relationship
Free and Reduced Lunch	-.385
School Info via Internet	.327
Teachers with Masters Degree	.314
Black	-.290
Teachers with Certificate	.282
White	.269
Teacher Average Salary	.262
Student/Teacher Ratio	.261
Feedback Systems Used	.242
Attendance Rate	.240

So?

School/student demographics, particularly free and reduced lunch at 13.8%, exert a statistically significant impact on student achievement.

Community Demographics
Analysis of significant items

Item	Relationship
Poverty Level	-.268
Household Income	.265
Less than High School Education	-.246
College Degree	.221
High School Diploma	-.205
Population	.204

So?

Community demographics, particularly poverty level at 7.2%, exert a statistically significant impact on student achievement.

School Library Media Center Services
Analysis

- 40 Factors (All 11 component variables)
- Correlated to Weighted Average MAP Index?
- How much?
- Significantly?

School Library Media Center Services
Analysis
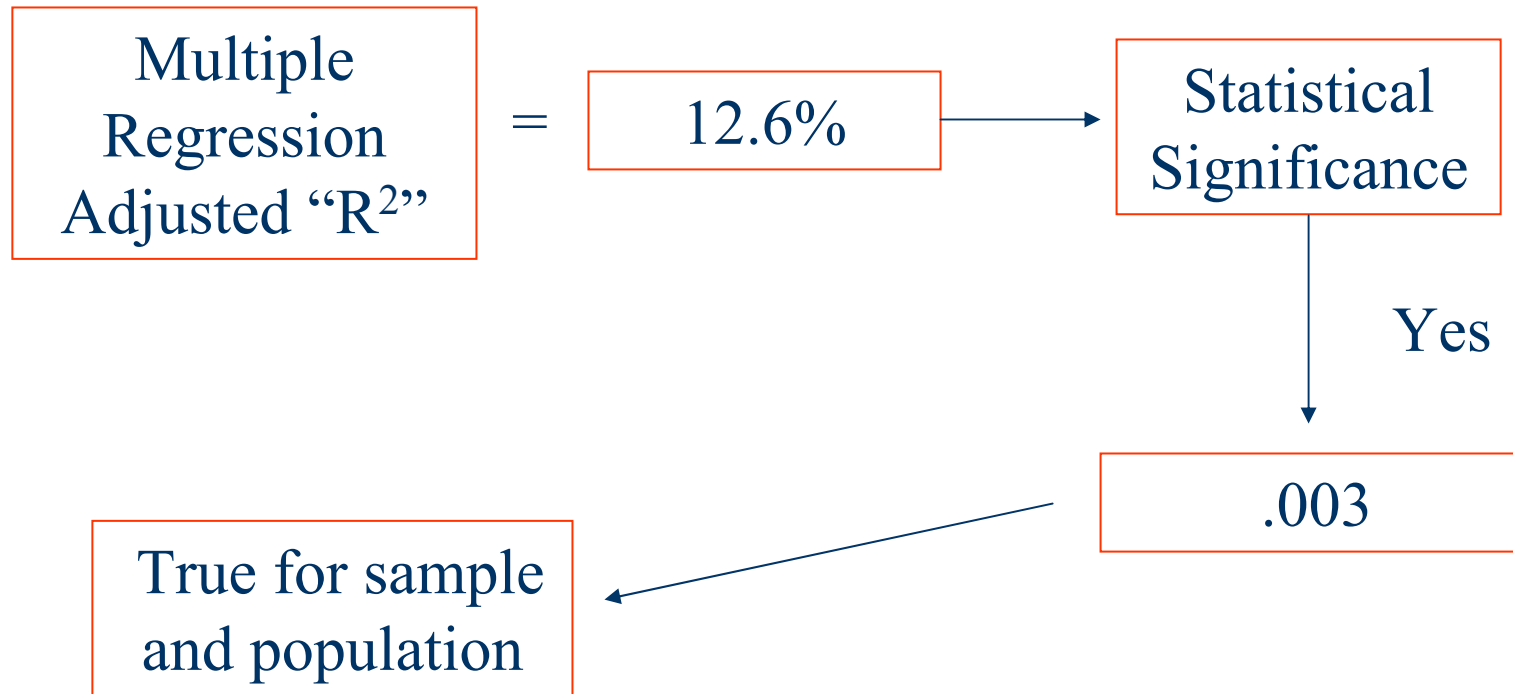
Determining Association to Student Achievement

Multiple Regression Adjusted "R^2"

Incremental Partial Correlation

Other variables could have affected
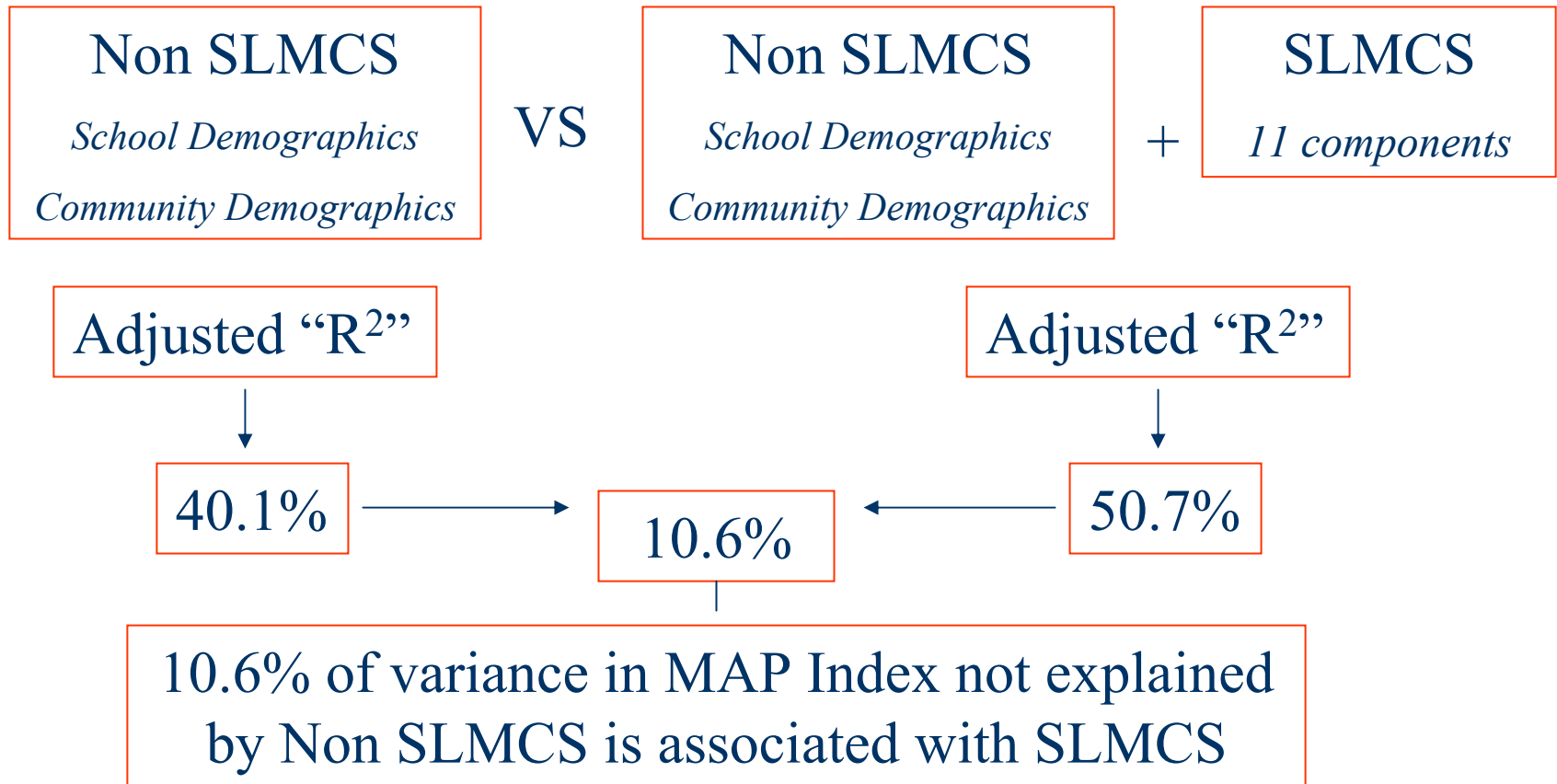
Less chance that there are other variables that could have affected

School Library Media Center Services
Multiple Regression

| Multiple Regression Adjusted "R^2" | = | 12.6% | → | Statistical Significance |

Yes

.003

True for sample and population

School Library Media Center Services
Partial Correlation Analysis

Non SLMCS		Non SLMCS		SLMCS
School Demographics	VS	*School Demographics*	+	*11 components*
Community Demographics		*Community Demographics*		

Adjusted "R^2"

Adjusted "R^2"

40.1% → 10.6% ← 50.7%

10.6% of variance in MAP Index not explained by Non SLMCS is associated with SLMCS
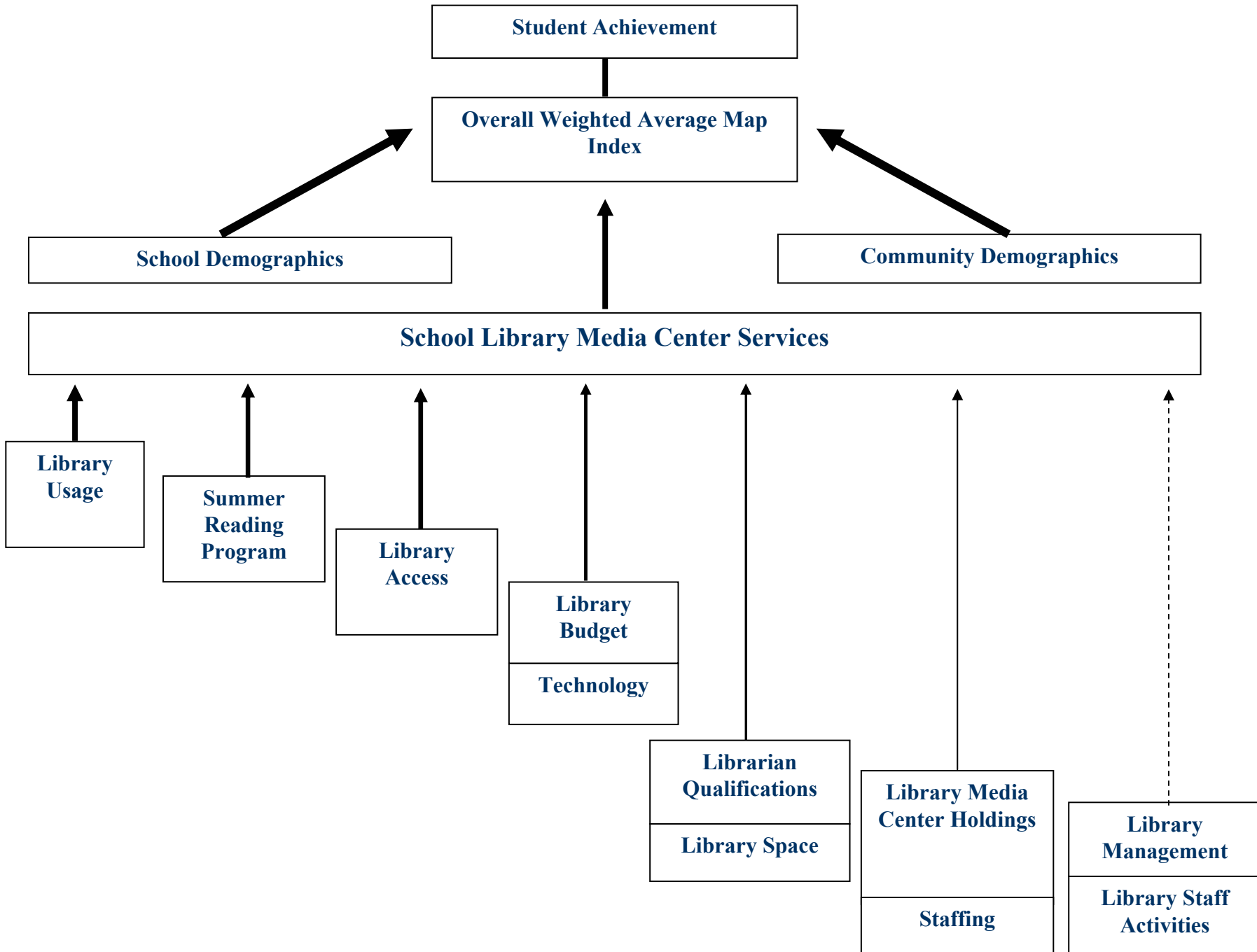
So?

School library media center services exert a 10.6% statistically significant impact on student achievement.

11 Components

Components	Level	Adjusted R^2	Significant	External Partial (non LMS)	Internal Partial (Other Components)
Library Usage	1	++	Strong	++	++
Summer Reading	2	+	Strong	+	+
Library Access	3	+	Yes	+	+
Library Budget	4	+	Yes	+	0
Technology	4	+	Yes	+	0

11 Components

Components	Level	Adjusted R^2	Significant	External Partial (non LMS)	Internal Partial (Other Components)
Librarian Qualifications	5	+	Yes	0	0
Library Space	5	+	0	+	0
Library Media Center Holdings	6	+	0	0	0
Library Staffing	6	0	0	+	0
Library Management	7	0	0	0	0
Library Staff Activities	7	0	0	0	0

Usage

- Consistent Use of Library
- Checked Out Materials and Books

Summer Reading Program

- Happens
- Cooperation with Public Library is a Plus

Access

- Anywhere
- Anytime

Conclusions

What Significantly Impacts Student Achievement?

- School Library Media Centers
- Consistent Usage
- Checked Out Books and Materials
- Summer Reading Program
- Access

Next Steps

- Pat yourself on the back
- Watch for more information

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