The Impact of School Library Media Centers on Academic Achievement

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Hi Willow Research and Publishing
Castle Rock, Colorado
1993

ISBN 0-931510-48-1

Publisher: Hi Willow Research and Publishing
P.O. Box 266
Castle Rock, Colorado 80104

Order from: Libraries Unlimited
P.O. Box 6633
Englewood, Colorado 80155
800-237-6124

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Prepared for the U.S. Department of Education
Office of Educational Research & Improvement Library Programs

This research was supported by a Library Research
& Demonstration Grant No. R039A00008-90

ADVISORY COMMITTEE

ACKNOWLEDGMENTS

The Study Team is indebted to many people.

- Hundreds of library media, student assessment, and general administrative staff at school and district levels collected and reported the data necessary for this study.

- The eight members of the project's advisory committee contributed countless hours of meeting attendance, reading, and thoughtful guidance and counsel. These include: Eric Feder, Colorado Department of Education (CDE); Deborah Kirk, Greeley School District 6; Wayne Martin, CDE; Jane Miller, Arkansas Valley Library System; Pat Neel, Cherry Creek School District; Rebecca Poole, Fountain-Fort Carson Schools; Ronnie Storey-Ewoldt, Plains & Peaks Library System; and Dian Walster, University of Colorado--Denver.

- Our colleagues in the State Library and Adult Education Office and the Colorado Department of Education took on many of our regular duties, providing the time necessary for intensive research, and shared their own expertise, filling gaps in our own. Special thanks are due to Julie Boucher and Louise Conner, Library Research Service; Pat Chapman, Planning & Evaluation; and Wayne Martin, Assessment.

- A multitude of interested colleagues nationwide provided consistent encouragement, advice, and support at national conferences and via a regular stream of mail, faxes, e-mail, and telephone calls. Special thanks are due to Mary Jo Lynch, Director of the American Library Association's Office for Research and Statistics, and Barbara Immroth, Professor at the University of Texas Graduate School of Library and Information Science.

- And, finally, very special thanks go to Yvonne Carter of Library Programs, Office for Educational Research & Improvement, U.S. Department of Education. As program officer for the project, she was an unfailing source of encouragement and support in the face of many unexpected delays in completing this research.

To all of these individuals, we express our sincere gratitude.

EXECUTIVE SUMMARY

This study provides evidence of the positive impact of library media centers on academic achievement in 221 Colorado public schools during the 1988-89 school year. In contrast to previous research on the relationship, this study uses schools rather than students as units of analysis, considers service outputs as well as resource inputs, and rules out the effects of selected school and community conditions which might have explained away this relationship.

The findings of this study indicate the importance of library media expenditures--and particularly the staff and collections they make possible--in promoting academic achievement. The importance of the library media specialist's instructional role is also verified.

Highlights:

- Where LMCs are better funded, academic achievement is higher, whether their schools and communities are rich or poor and whether adults in the community are well or poorly educated.

- Better funding for LMCs fosters academic achievement by providing students access to more library media staff and larger and more varied collections.

- Students whose library media specialists participate in the instructional process are higher academic achievers.

- Among predictors of academic achievement, the size of the LMC staff and collection is second only to the absence of at risk conditions, particularly poverty and low educational attainment among adults.

- Library media expenditures and staffing tend to rise and fall with total school expenditures and staffing.

Also included in this report are a current and annotated bibliography on this subject and a timeline chronicling the evolution of such studies.

For those wishing to summarize this study for groups of librarians, teachers, parents, and administrators, Appendix E has been written to assist in the translation of a theoretical presentation to a practical one. This section was written by David V. Loertscher.

APPENDICES

LIST OF TABLES

APPENDIX E

PRESENTING THE COLORADO STUDY
by
David V. Loertscher

During the 19th and 20th centuries, each generation in the United States sacrificed to educate the next as its contribution to the perpetuation of the American Dream. But as the 1990s roll on toward a new century, the nation is questioning the quality and the ability of our schools to provide the intended boost. So much bad press about the inadequacies of the school system has been ingested by the nation in the past 10 years, that parents, educators, and government officials are asking how to repair or restructure it. Some view the problem as unsolvable.

What are the basic elements that must exist to provide a quality education? What are the enriching elements (the ones that are nice to have if you can afford them)? What are the extraneous elements (those that probably don't make a difference one way or another)? Is a teacher with 20 students and a few textbooks the basic element with every other aspect of the modern school a frill? Are the add-ons of art, music, physical education, vocational education, counseling, technology, and libraries really needed, or are these expensive features frills? Or worse, are these additional elements a drag on both the pocketbook and the job a single teacher can accomplish alone?

Such questions might be easy to answer if basic literacy were targeted at a single achievable level such as: every student will exit school with at least a reading level of at grade 6.2. But the requirements of a complex society, an information society, a technological society, or an economic giant, demand more. On the one hand, many accept the premise that we must provide more, but when questions of quality arise, when it seems that nothing is working, then one begins to wonder if a basics approach is again a good idea.

Two important studies, both published at the beginning of 1993, address the question of basics in education: the contribution of the school library media center on achievement[1] and the power of free voluntary reading.[2] Added together, these two studies provide clues about what's really essential in American education. They provide guidelines for program planning, action, and necessary expenditures to communities as they streamline or re-design their schools. Best of all, the research findings make sense.

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1 Lance, Keith Curry, Lynda Welborn, and Christine Hamilton-Pennell. *The Impact of School Library Media Centers on Academic Achievement.* Castle Rock, Colo.: Hi Willow Research and Publishing, 1993.

2 Krashen, Stephen. *The Power of Reading.* Englewood, Colo.: Libraries Unlimited, 1993.

In the thirty years that school library media centers have been a widespread part of schools in the United States, at least $80 billion have been spent on school libraries if you count facilities, materials, technologies, and personnel. Any time a budget crisis looms on the horizon, library media centers come under scrutiny because they represent a substantial cost over and above the investment in a single teacher armed with a few textbooks. Has this investment paid off? The Colorado study (the name I shall use for Lance/Welborn/Hamilton-Pennell) and the Krashen research summary give a thunderous **YES** to that question. But that answer must be tempered with a **YES...IF** qualification, since a simple expenditure for a space, materials, and technologies is only a tool. It is easy to go to the store and buy a shovel, but that doesn't guarantee that a hole will get dug.

After reading the Colorado study of school library media centers and the Krashen review of research on free voluntary reading, it occurred to me that many people might be asked to give a 10-15 minute summary of these two documents to administrators, teachers, library media personnel, and/or parents as program plans and adjustments are being considered. The purpose of this paper is to capsulize the two studies complete with transparencies that might be used in a presentation. While there are many aspects of library media programs that could be presented to decision makers using the document *information Power*,[3] the view here is limited to the information provided by the two studies. It is an incomplete picture, but an important one. For example, there is no mention about the contribution a library media center can make in the areas of high technology, media production, computing, curriculum development, the research process, etc.

Presenters who desire to summarize the two studies for an audience should read both studies carefully, since questions are likely to arise that can only be answered by an in-depth acquaintance with both works.

The Colorado Study

In 1987, School Match, a company helping business executives relocate, reported that the strongest predictor of test performance in selecting a prospective school for your children is library media expenditures. Keith Lance, one of the authors of the Colorado study, was interested in confirming this finding for Colorado while controlling for economic differences between schools and communities. He was also interested in identifying intervening variables that explain this relationship. Using a grant from the U.S. Office of Education, the Colorado study was planned and carried out in 1991-1992 using data already collected by the Colorado Department of Education during the 1988-1989 school year.

Of the 1,331 schools in Colorado, 221 could report sufficient data in Department files to be included in the study. (see **transparency 1**) Comparing these sample schools to all schools in the state, the research team found them quite representative.

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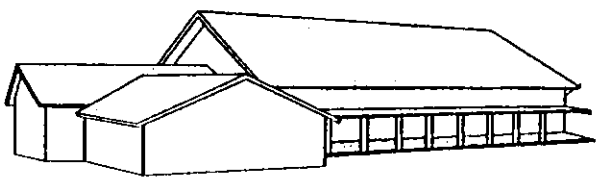
[3] American Association of School Librarians and the Association for Educational Communications and Technology. *Information Power.* Chicago: American Library Association, 1988.

THE SAMPLE

- 221 of 1,331
  Colorado public schools
  -- responded to LMC survey
  -- used ITBS/TAP



- sample reflects
  actual distribution by
  -- school level
  -- enrollment range
  -- district setting

Comparing the Colorado sample to the schools of the nation, the Colorado schools seemed typical when comparing grade levels (see **transparency 2**) and enrollment size. (see **transparency 3**)

Data collected from the Department files about the participating schools included data about (see **transparency 4**)

a. the community and the size of the at-risk student population,
b. the teacher-pupil ratio in the school,
c. the qualifications of the teaching staff (career teachers), and
d. the total expenditures per student for the entire school.

Data available for the library media centers included:

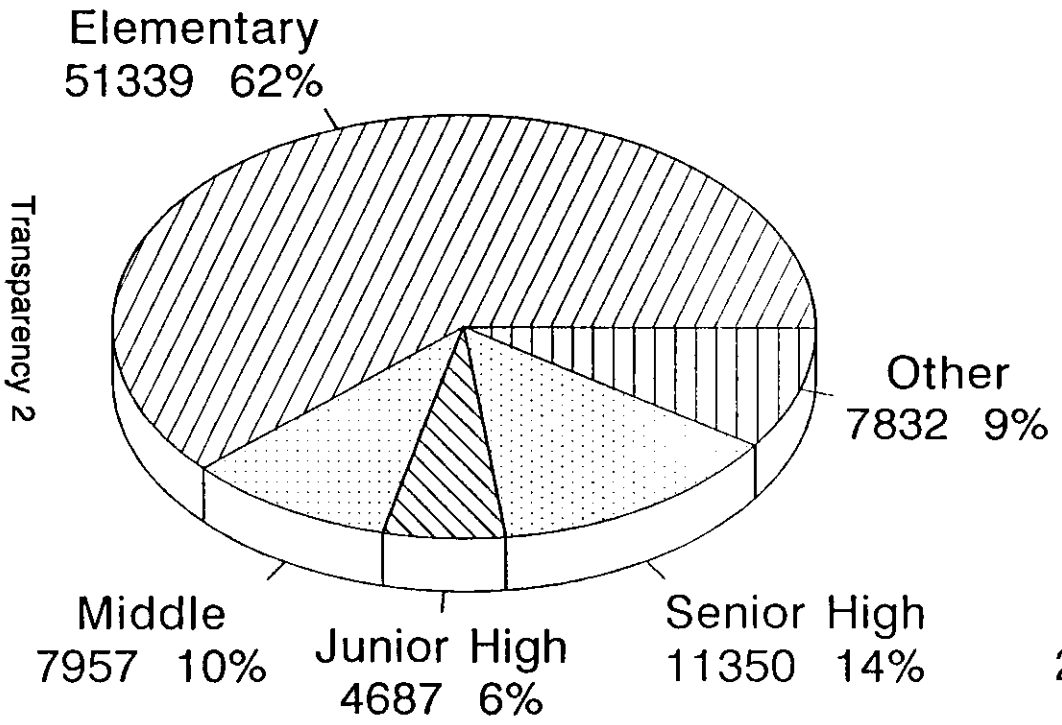
a. The size of the LMC collection including books, periodicals, and audiovisual materials,
b. the amount of involvement of the LMC staff in assisting students and teachers to use the LMC facilities and collection,
c. the amount of use the LMC received,
d. the use of microcomputers in the school, and
e. the total expenditures for the LMC in each school.

These data were compared with standardized test scores on either the ITBS (*Iowa Tests of Basic Skills*) or on the TAP (*Tests of Achievement and Proficiency*) looking at scores on reading, language, and information skills. These scores and reading scores were so highly correlated that reading scores became the measure of achievement used in the study.

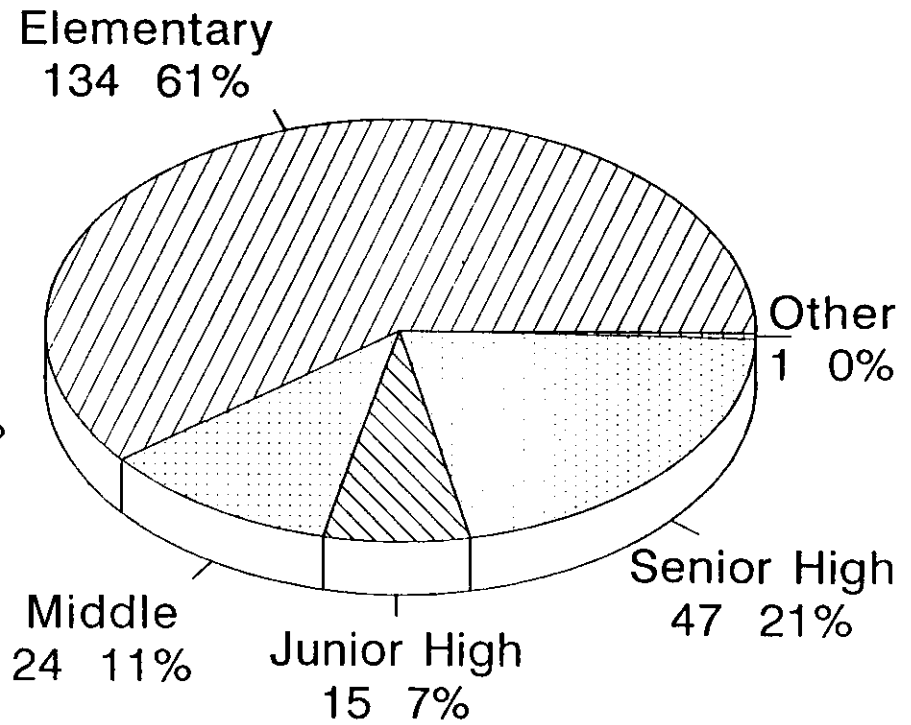
Findings of the Colorado Study

The Colorado study shows that the LMC is a predictor of academic achievement. Specifically,: the size of the library media center staff and the size of the LMC collection (all media) predict academic achievement. (see **transparency 5**)

U. S. & Sample Schools by Level, 1988-89



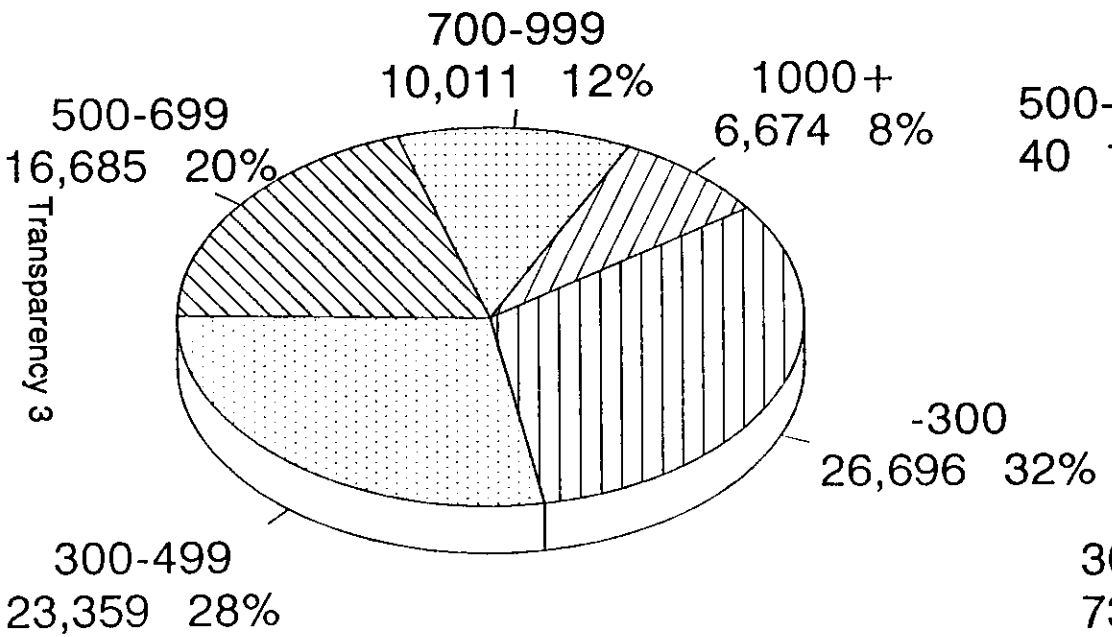
U. S.



Sample

Source: Library Research Service

U. S. & Sample Schools by Enrollment Range, Fall 1988



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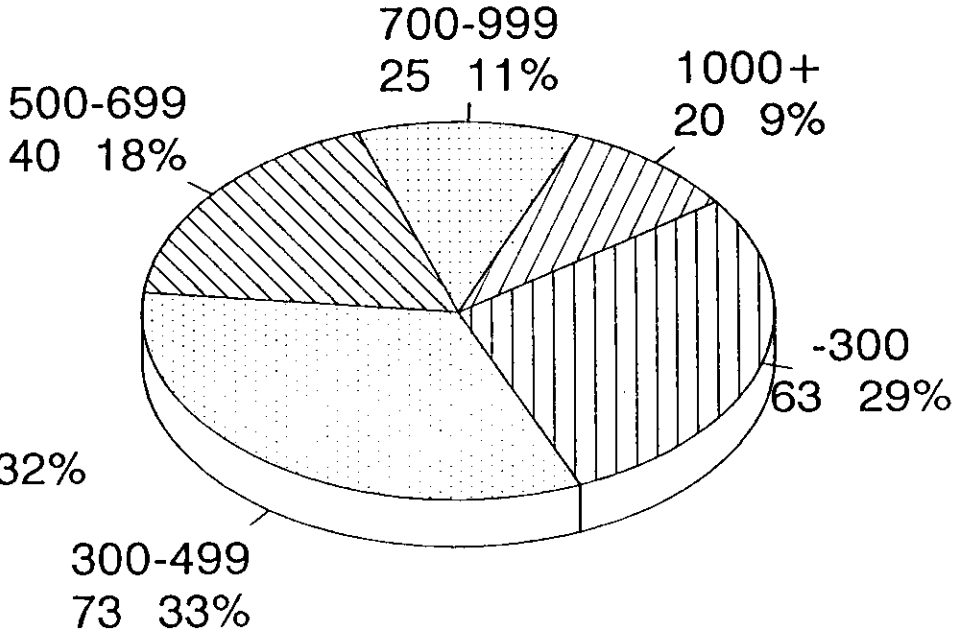
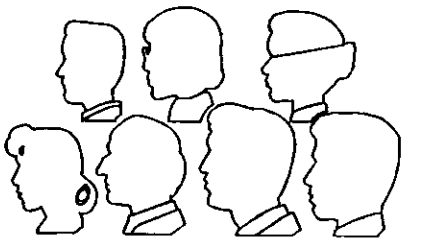
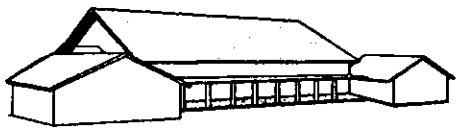


Sample

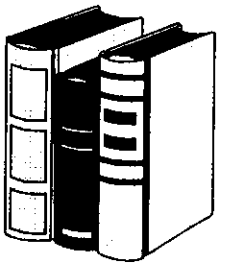
Transparency 3

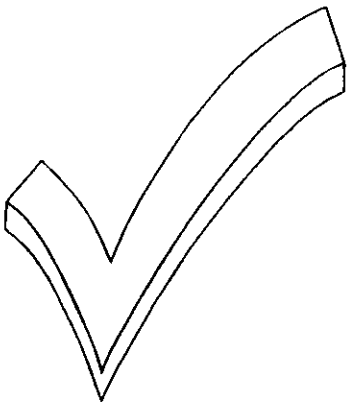
MODEL OF STUDENT ACHIEVEMENT





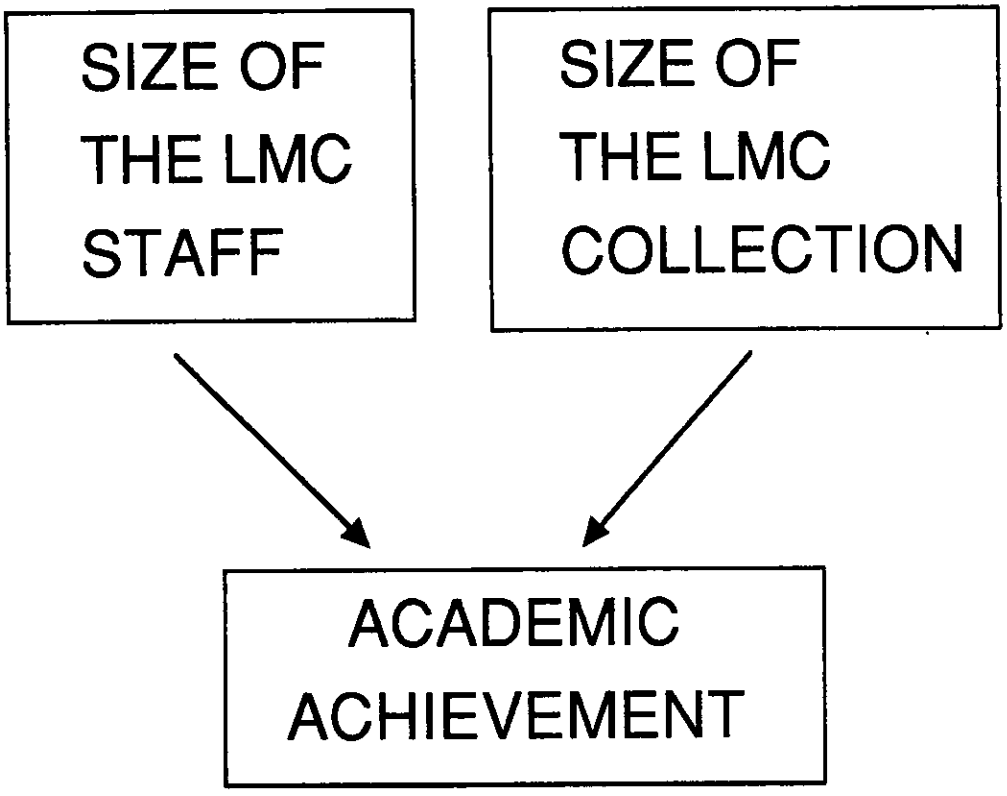
- Community
  -- At Risk Students
- School
  -- Teacher-Pupil Ratio
  -- "Career Teachers"
  -- Expenditures
- Library Media Center
  -- LMC Size
  -- LMS Role
  -- LMC Use
  -- Computing
  -- Expenditures
- Test Scores





Trans. 4

LMC POWER

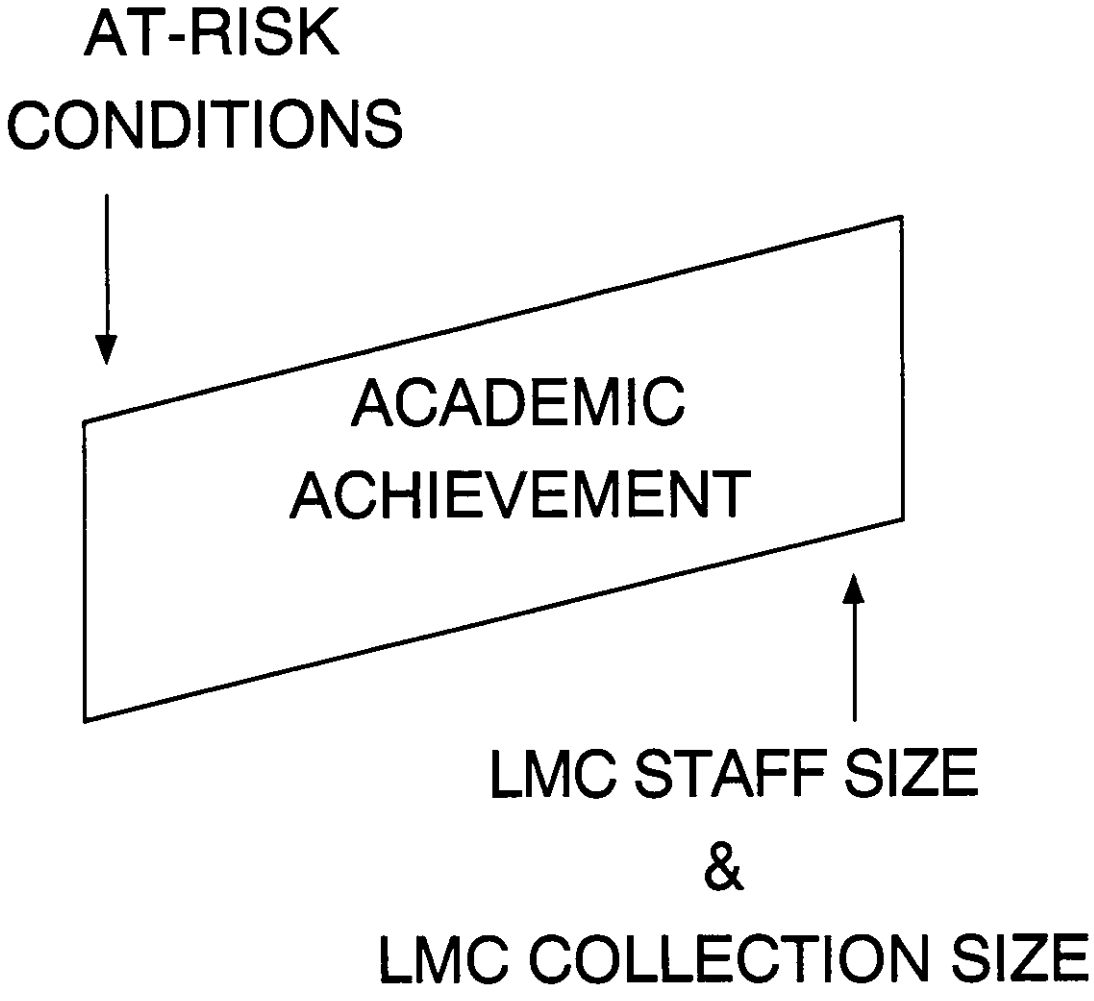

SIZE OF THE LMC STAFF
SIZE OF THE LMC COLLECTION
ACADEMIC ACHIEVEMENT

When the at-risk factors of the school are compared with the strength of the library media center factors, an interesting tug of war occurs (see **transparency 6**). Academic achievement is being dragged down by the at-risk factors in the students' backgrounds and at the same time the LMC staff size and the LMC collection size are pushing academic achievement up. Of the factors considered in the Colorado study, at-risk conditions exert the greatest influence, but controlling for such conditions, the size of the LMC staff and collection is the only other factor that affects academic achievement.

In a statistical sense, two factors, at-risk and LMC size, account for a great deal of the variance in reading scores across the grade levels. (see **transparency 7**)

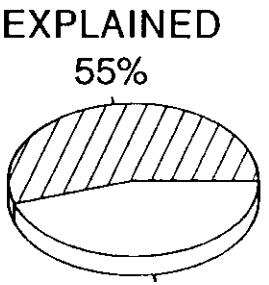
Looking at the two factors another way, at-risk factors are contributing negatively to achievement and library media staff and collection size is contributing positively. (see **transparency 8**)

TUG OF WAR

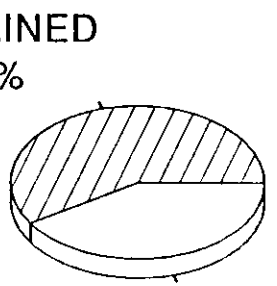

AT-RISK
CONDITIONS
ACADEMIC
ACHIEVEMENT
LMC STAFF SIZE
&
LMC COLLECTION SIZE

VARIATION EXPLAINED BY AT RISK & LMC SIZE FACTORS

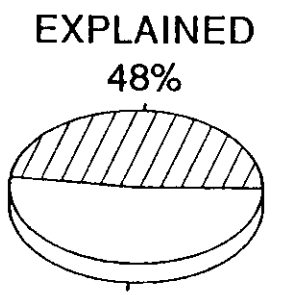
Transparency 7



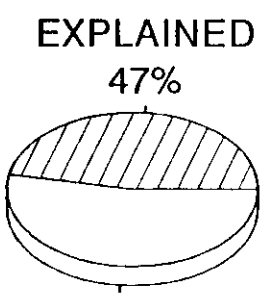
1ST GRADE (ITBS)



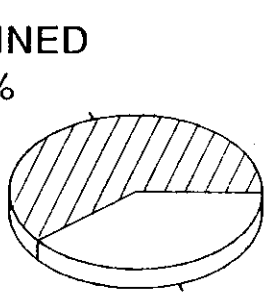
2ND GRADE (ITBS)



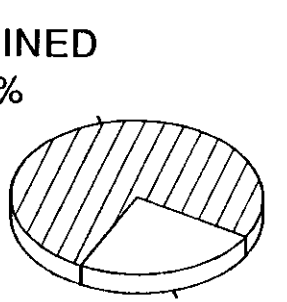
4TH GRADE (ITBS)



5TH GRADE (ITBS)

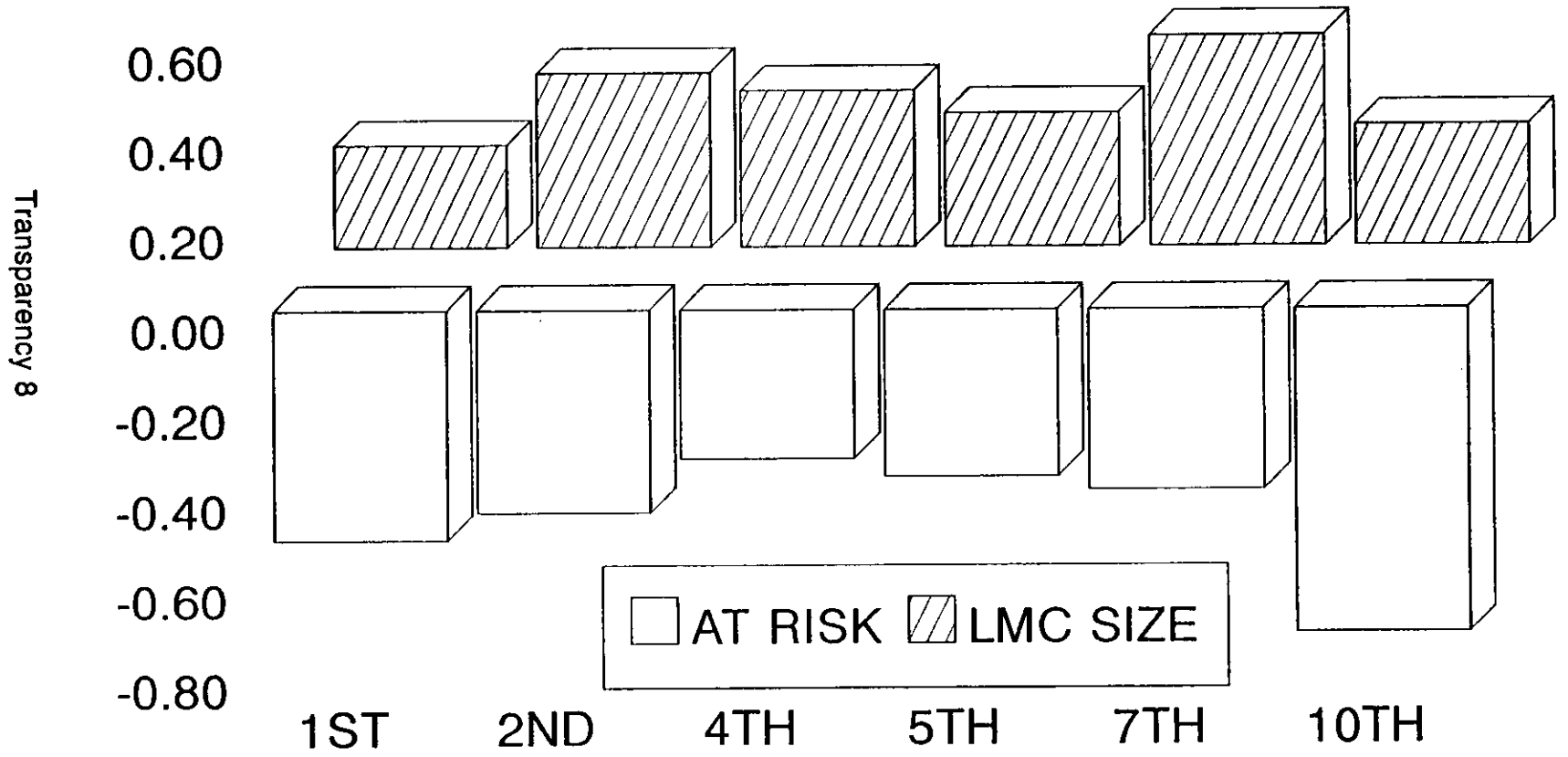


7TH GRADE (ITBS)



10TH GRADE (TAP)

PATH (BETA) COEFFICIENTS FOR AT RISK & LMC SIZE FACTORS



LMC SIZE	0.23	0.39	0.35	0.30	0.47	0.27
AT RISK	-0.51	-0.45	-0.33	-0.37	-0.40	-0.72

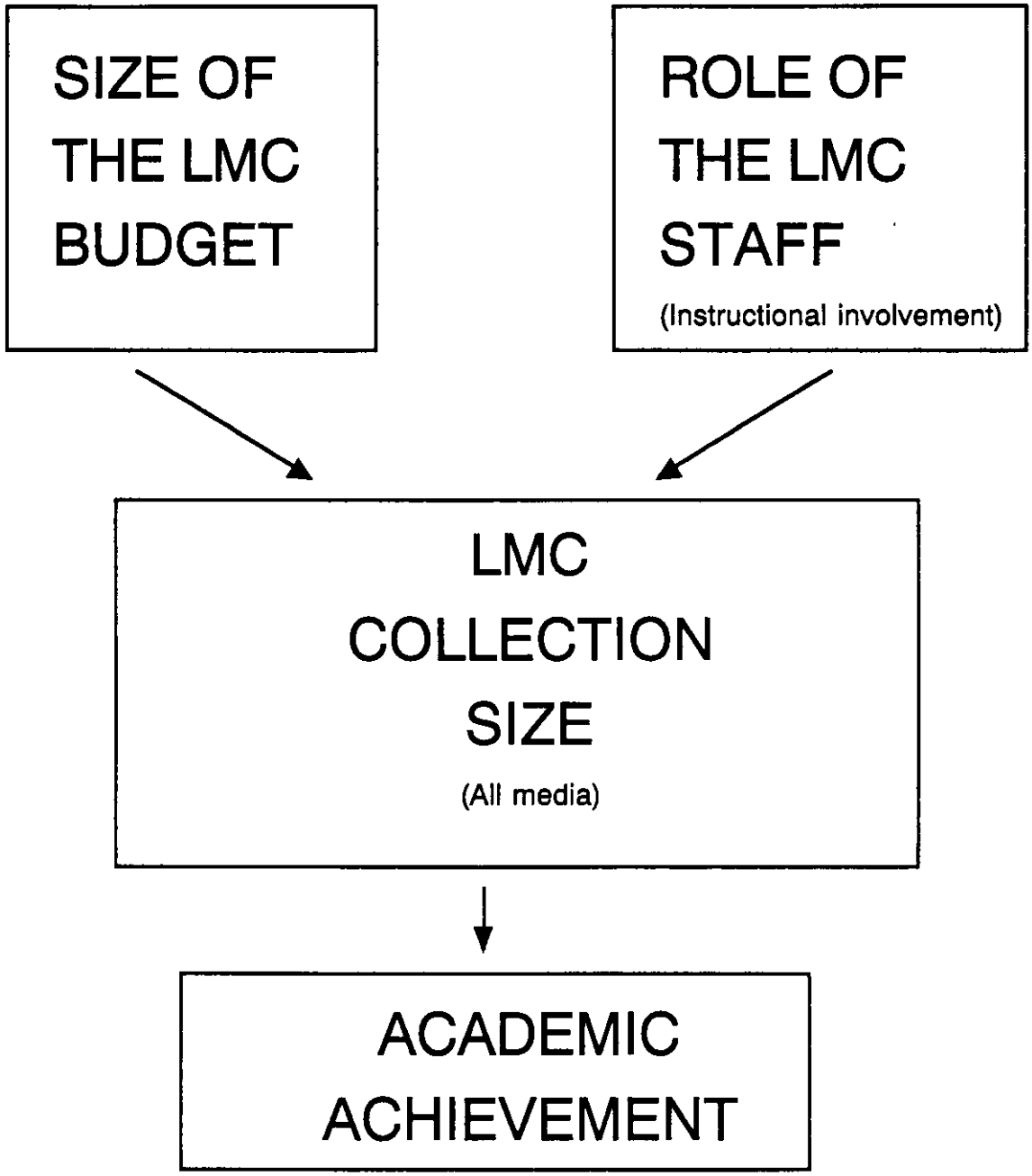
Two other factors associated with LMCs help predict academic achievement. **Transparency 9** shows that a combination of money and people help. The size of the LMC budget and the role that the library staff takes have an affect upon the LMC collection which in turn predicts academic achievement (measured on the ITBS and TAP tests as reading achievement).

It is important to understand the role that the library media specialist plays and why that would contribute to academic achievement. When the library media specialist joins with the teacher to exploit the resources of the library media collection, this activity is known as resource-based teaching. That cooperative effort is increased when the staff of the library media center is of sufficient size to allow the specialist time to work with teachers and students. **Transparency 10** shows the relationship.

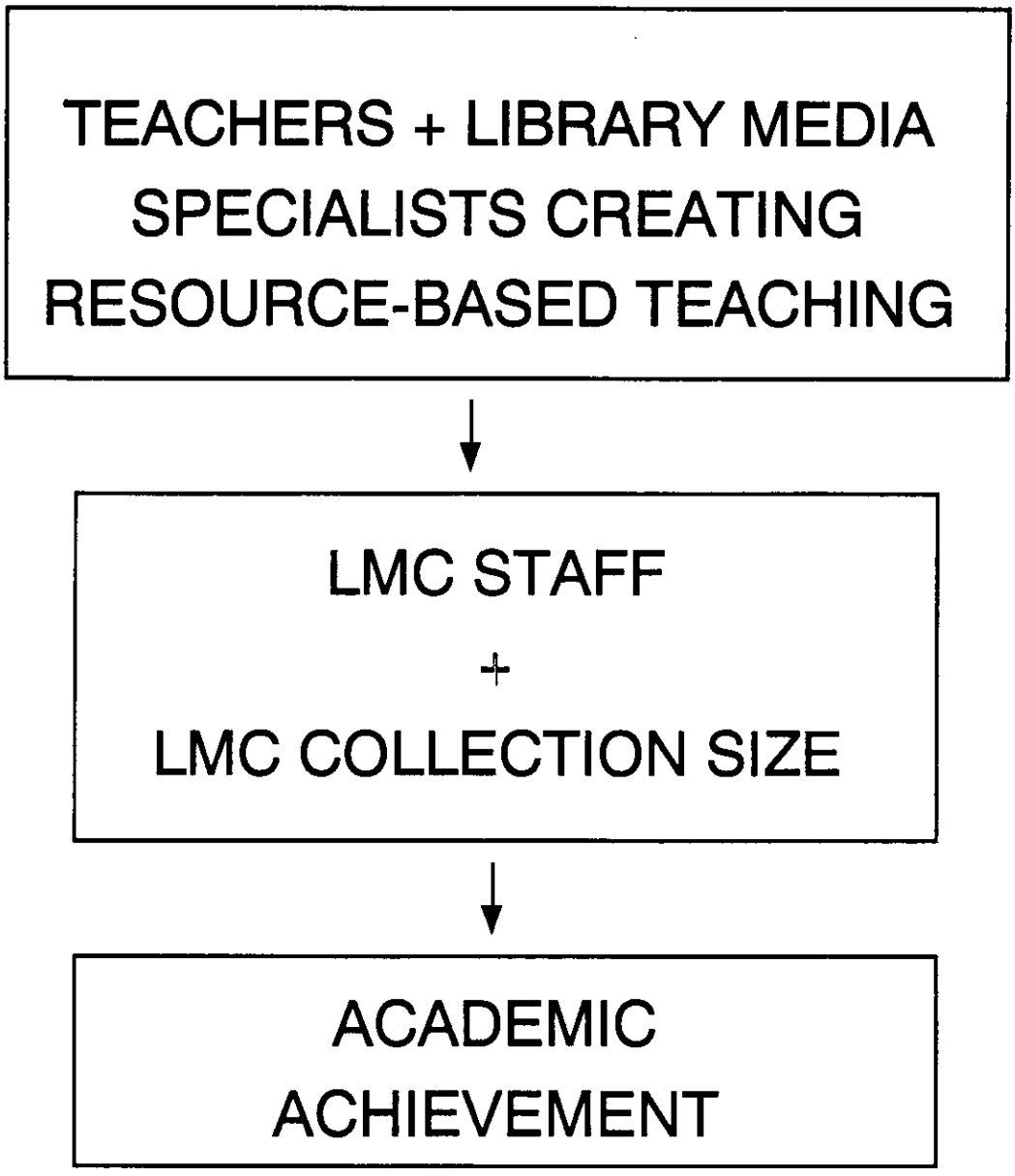
From previous research, we have information about the minimum size of the LMC staff if resource-based teaching is to be the central focus of the LMC program rather than having an emphasis on warehousing. In a previous study by Loertscher, Ho, and Bowie,[4] a minimum size LMC staff was identified below which resource-based teaching and individual help for teachers and students suffered major declines. That threshold size is at least one full-time library media specialist and one full-time clerical. The reason for this threshold is that the warehouse responsibilities of any library media center are so great that one person cannot handle the entire job alone and still make resource-based teaching a central program feature. (see **transparency 11**)

[4] Loertscher, David V. , May Lein Ho, and Melvin M. Bowie (1987). "Exemplary Elementary Schools and Their Library Media Centers: A Research Report." *School Library Media Quarterly, 15*(3), 147-153.

MONEY AND PEOPLE POWER



Transparency 9


TEACHERS + LIBRARY MEDIA SPECIALISTS CREATING RESOURCE-BASED TEACHING
LMC STAFF
+
LMC COLLECTION SIZE
ACADEMIC ACHIEVEMENT

MINIMUM THRESHOLD
SIZE OF THE
LMC STAFF

IS

ONE
FULL-TIME
LIBRARY MEDIA
SPECIALIST

+

ONE
FULL-TIME
CLERICAL

Findings of the Krashen Study

What could account for the power of the LMC to predict academic achievement? In one sense, we could theorize that administrators of school districts who care enough to have strong library media programs also care enough to set an entire program in place which affects academic achievement. In this view, the library media program is a symptom of other good things happening.

The research review done by Stephen Krashen in his book *The Power of Reading,* provides another logical explanation. Krashen reviews hundreds of research studies done in the 19th and 20th centuries which explore the power of free voluntary reading. That is the kind of reading a young person is not assigned to do, but rather chooses to do. Krashen's summary is not only insightful, but when possible, he has re-analyzed experimental data with current statistical tools to re-check the results of previous studies.

Krashen concludes after reviewing many studies, the utterly startling conclusion (with tongue in cheek): we learn to read by reading! If we are trying to learn a second language, the best results happen if we read in that language (good advice for all the students in our schools who must learn English). But Krashen found even better and more powerful results. **Transparency 12** notes that free voluntary reading is the best predictor of reading comprehension, vocabulary growth, spelling ability, grammatical usage, and writing style.

Krashen summarizes research studies which give significant pointers to those designing school reading programs. A few of those hints are: (see **transparency 13**)

1. The amount read is critical.
2. A print-rich environment encourages more reading.
3. The larger school and public library collections, the more young people read.
4. Reading aloud helps.
5. Sustained silent reading programs help.
6. Encouraging young people to read helps.
7. Reading is its own reward; that is, the more one reads, the more pleasant and habit forming the task becomes.
8. Modeling by parents, teachers, and friends help.

Krashen also points out that free voluntary reading is more powerful than:

1. Skill-based reading programs,
2. Vocabulary drill lessons, and
3. Spelling drills.

THE AMOUNT OF FREE VOLUNTARY READING IS THE BEST PREDICTOR OF:

READING COMPREHENSION

VOCABULARY GROWTH

SPELLING ABILITY

GRAMMATICAL USAGE

WRITING STYLE

PROMOTE READING ACHIEVEMENT BY:

1. CREATING A PRINT-RICH ENVIRONMENT,
2. PROVIDING LARGE LIBRARY COLLECTIONS,
3. READING ALOUD,
4. USING SUSTAINED SILENT READING,
5. ENCOURAGING READERS,
6. HELPING TO FORM READING HABITS,
7. MODELING READING.

All affect the amount read which in turn affects reading achievement.

Combining Both Studies

When we combine the Colorado Study and the Krashen review of research, a powerful model appears that can become the basis of a solid reading program for schools. **Transparency 14** shows that model.

Not only are the two studies a powerful argument for the support of strong library media programs as an essential component in every school, but they put the burden of proof back on those who claim the contrary. It is doubtful that any evidence can be mounted to show that good library media programs don't make a difference.

THE POWER OF THE LMC