

EGS Research & Consulting

STUDENT LEARNING THROUGH WISCONSIN SCHOOL LIBRARY MEDIA CENTERS

LIBRARY MEDIA SPECIALIST SURVEY REPORT

Prepared for:

**Division for Libraries, Technology and Community Learning
Wisconsin Department of Public Instruction
125 S. Webster Street
Madison, WI 53707**

Prepared by:

**Ester G. Smith, Ph.D.
EGS Research & Consulting**

January 2006

**6106 Ledge Mountain
Austin, TX 78731
Tel: (512) 467-8807 Fax (512) 467-8801 E-mail: egs@io.com**

ACKNOWLEDGEMENTS

I wish to express appreciation and acknowledge the assistance of many individuals in this study.

I greatly appreciate the assistance and support of the Wisconsin Department of Public Instruction staff, especially Kate Bugher, School Library Media Consultant, Instructional Media and Technology Team, Division for Libraries, Technology and Community Learning. Many thanks to Ms. Bugher for providing input into the design of the Library Media Specialist questionnaire, Teacher and Student questionnaires, and the Case Study Interview Guides; for publicizing the study and encouraging the school library media specialists to complete and submit their online questionnaires; for assistance with the case studies; and for reviewing the study reports.

My thanks to Dr. Ross J. Todd and Dr. Carol C. Kuhlthau whose teacher and student questionnaires *Perceptions of Learning Impacts Survey* and *The Impacts on Learning Survey* from the 2004 *Student Learning Through Ohio School Libraries* study we adapted for the Wisconsin Study.

Special thanks to Dr. Keith Lance, Director of Library Research Service at the Colorado State Library, for his permission to use a questionnaire he had designed as a basis for the questionnaire for this study, and for the generosity he exhibited in sharing information, suggestions, and ideas.

A special thank you to the principals who had their teachers and students participate in the survey and to the teachers and students who completed the Teacher and Student Questionnaires. A special thank you, also, to the school library media specialists throughout the State of Wisconsin who completed the Library Media Specialist Questionnaires, for their time and effort. Finally, I want to thank the principals, library media specialists, teachers, and students who participated in the case studies.

The study was funded in whole through an FY 2005 LSTA grant from the Wisconsin Department of Public Instruction (WDPI). The WDPI also provided school, teacher, student and test data that was used in the study through its Wisconsin Information Network for Successful Schools (WINSS) site. The Wisconsin Educational Media Association (WEMA) has also agreed to help fund dissemination of the study upon its release.

Ester G. Smith
EGS Research and Consulting
January 2006

TABLE OF CONTENTS

I.	EXECUTIVE SUMMARY	1
1.	Study Objectives and Methodology	1
2.	Profile of Wisconsin library Media Programs	1
2.1	Library Media Program Staffing	1
2.2	Financial Resources	3
2.3	Hours of Operation	4
2.4	Library Media Program Staff Activities	4
2.5	Library Media Program Resources and Use	7
3.	The Relationship Between Library Media Program Variables and Student Performance	8
4.	Conclusions and Recommendations	14
II.	STUDY OBJECTIVES AND METHODOLOGY	16
1.	Research on Libraries and Student Performance	16
2.	Study Methodology	18
2.1	Questionnaire	18
2.2	Data Collection	20
2.3	Wisconsin Information Network for Successful Schools (WINSS) Data	21
2.4	Study Design	21
2.5	Statistical Analysis	27
III.	SCHOOL LIBRARY MEDIA PROGRAM STAFFING	29
1.	Library Media Program Staffing by School Level	30
1.1	Elementary School Library Media Program Staff	30
1.2	Middle/Junior High School Library Media Program Staff	35
1.3	High School Library Media Program Staff	44
2.	Staff Qualifications	51
3.	The Impact of Full-time Library Media Specialists	52
4.	Library Media Programs Without Library Media Specialists	62
5.	Library Media Programs Without Library Media Aides	69
IV.	LIBRARY MEDIA PROGRAM FINANCIAL RESOURCES	77
1.	Elementary School Library Media Program Budget	77
2.	Middle/Junior High School Library Media Program Budget	79
3.	High School Library Media Program Budget	81
V.	LIBRARY MEDIA PROGRAM INSTRUCTIONAL ROLE	84
VI.	LIBRARY MEDIA PROGRAM COLLECTION	90
VII.	LIBRARY MEDIA PROGRAM TECHNOLOGY RESOURCES	94
VIII.	LIBRARY MEDIA PROGRAM FACILITIES AND USE	97

IX.	RELATIONSHIP BETWEEN LIBRARY MEDIA PROGRAM RESOURCES AND ACTIVITIES AND STUDENT PERFORMANCE	104
1.	Library Media Program Development	104
1.1	Elementary School Library Media Programs	104
1.2	Middle/Junior High School Library Media Programs	106
1.3	High School Library Media Programs	107
2.	Leadership: Library Media Program Staff Involvement with Administrators, Teachers and Colleagues	111
2.1	Elementary School Library Media Programs	111
2.2	Middle/Junior High School Library Media Programs	112
2.3	High School Library Media Programs	112
3.	Library Media Program Staff Teaching Activities: Collaboration	113
3.1	Elementary School Library Media Programs	114
3.2	Middle/Junior High School Library Media Programs	114
3.3	High School Library Media Programs	115
4.	Library Media Program Technology	116
5.	Association Among Library Media Program and School Variables: Factor Analysis	123
5.1	Elementary School Factor Analysis	123
5.2	Middle/Junior High School Factor Analysis	127
5.3	High School Factor Analysis	131
6.	The Contribution of Library Media Program Resources and Activities to Student Performance	135
6.1	Elementary Schools	135
6.1.1	WKCE Reading Proficient and Advanced	135
6.1.2	WKCE Language Arts Proficient and Advanced	136
6.2	Middle/Junior High Schools	138
6.3	High Schools	139
6.3.1	WKCE Reading Proficient and Advanced	139
6.3.2	WKCE Language Arts Proficient and Advanced	140
X.	LIBRARY MEDIA PROGRAMS AND STUDENT PERFORMANCE	142
1.	Elementary Schools	142
2.	Middle/Junior High Schools	151
3.	High Schools	162
XI.	LIBRARY MEDIA PROGRAMS IN SCHOOLS WITH HIGH AND LOW PERFORMANCE ON READING KNOWLEDGE AND CONCEPTS EXAMINATION	174
1.	Elementary School Library Media Programs	174
2.	Middle/Junior High School Library Media Programs	179
3.	High School Library Media Programs	183

APPENDIX A: QUESTIONNAIRE

I. EXECUTIVE SUMMARY

1. Study Objectives and Methodology

The objectives of the Wisconsin public school library media programs study, as defined in the Wisconsin Department of Public Instruction (DPI) Request for Proposal, were to examine the leadership and instructional roles of Wisconsin public school library media specialists required for a robust information (library media) and technology literacy program and the direct relationship with and impact on student achievement and learning in all types of public school districts. The study aims to provide empirical evidence of the impact of a quality robust school library media program on student learning.

Data were collected in May and June 2005 through an online survey of all Wisconsin school library media centers. The questionnaire used was a modified version of the questionnaire used in the Texas study and modeled after the questionnaire initially developed by Keith Curry Lance. Of the 1,083 certified library media specialists, 855 (78.9 percent) completed questionnaires for 1,043 library media programs. Library media specialists were instructed to complete a separate questionnaire for each library that they served. One hundred and thirty five (135) library media specialists completed questionnaires for two or more libraries. Questionnaires were completed for 505 elementary library media programs, 250 middle/junior high school library media programs, and 288 high school library media programs.

Survey data were supplemented with data extracted for each of the responding schools from the Wisconsin Information Network for Successful Schools (WINSS) for 2003-04. WINSS data were obtained on the number of teachers, their highest degrees and years of teaching experience; student demographic data including student enrollment, ethnicity, English proficiency and economic status; and student performance on the Wisconsin Knowledge and Concepts Examination (WKCE) in reading and language arts and the ACT college entrance exam.

2. Profile of Wisconsin Library Media Programs

2.1 Library Media Program Staffing

The level of staffing in library media centers provides the core for services. Effective library media programs require a combination of certified professional library media specialists and library aides. There are significant gaps between recommended staffing levels defined by the School Information and Technology Staffing Guidelines in *Information & Technology Literacy: A Collaborative Planning Guide for Library Media and Technology, WDPI, c2002* and the actual staffing levels. Of the 1,043 school library media programs that responded to the survey, 17 schools had no certified library media specialists (1.6 percent) and 130 library media programs (12.5 percent) did not have any library aides.

In comparison to the staffing guidelines, 25.4 percent of the elementary schools, 38.0 percent of the middle/junior high schools, and 49.0 percent of the high schools did not have the requisite number of library media specialists. Absence or an insufficient number of aides significantly curtails the range and type of services that library media specialists can provide. At the elementary level, 48.7 percent of the schools did not have the recommended number of aides, 81.0 percent of the middle/junior high schools did not meet the recommended number of aides; and 88.5 percent of the high schools did not have the recommended number of library aides. Table 1.1 summarizes staffing information.

Table I.1. Library Media Program Staff

Library Media Program Staffing	Elementary Schools	Middle/Junior High Schools	High Schools
Certified Library Media Specialists			
Average number of certified library media specialists	1.00	1.00	1.06
Percent of library media programs with a full-time certified library media specialist	47.5%	68.4%	75.7%
Number of library media programs without a certified library media specialist	10	5	2
Percent of library media programs without a certified library media specialist	2.0%	2.0%	0.7%
Library Media Program Aides			
Average number of library media program aides	1.07	1.14	1.36
Percent of library media programs with a full-time library aide	32.9%	52.4%	52.8%
Number of library media programs without aides	63	33	34
Percent of library media programs without aides	12.5%	13.2%	11.8%
Library Media Program Staff			
Total average number of library media program staff	2.07	2.14	2.42
Number of library media programs with one staff member	67	36	34
Percent of library media programs with one staff member	13.3%	14.4%	11.8%
Number of library media programs with two staff members	353	164	157
Percent of library media programs with two staff members	69.9%	65.6%	54.5%
Number of library media programs with three or more staff	84	37	97
Percent of library media programs with three or more staff	16.6%	14.8%	38.8%
Library Media program Staff Hours			
Average number of library media specialist hours per week	27.70	32.20	35.50
Average number of library media program aide hours per week	28.40	31.20	37.71
Average number of library media program total staff hours per week	51.00	63.70	73.57

Library media programs use volunteers to augment their staffing profile. The number of student assistants and adult volunteers varied greatly with only about one-half of the programs using volunteers, as shown in Table I.2.

Table I.2. Library Media Program Volunteers

Library Media Program Volunteers	Elementary Schools	Middle/Junior High Schools	High Schools
Average number of adult volunteers	3.36	2.41	1.33
Range of adult volunteers in library media programs	1 - 37	1 - 12	1 - 4
Average number of student volunteers	6.71	6.45	4.59
Range of student volunteers	1 - 40	1 - 35	1 - 50
Total average number of library media program volunteers	6.03	6.20	4.45
Average number of hours adult volunteers work per week	7.49	4.93	5.93
Average number of hours student volunteers work per week	4.79	8.16	15.73
Total average number of volunteer hours per week	8.39	13.09	15.24
Percent of library media programs with adult volunteers	45.5%	29.2%	12.5%
Percent of library media programs with student volunteers	27.5%	39.6%	44.1%

Library media program staffing resources at all grade levels, both library media specialists and aides, were significantly and positively associated with the library media program collection, technology, financial resources, and instruction and leadership activities. At all grade levels, the school library programs with certified and support staff had larger print and electronic collections, a greater amount and a wider range of technology, higher levels of library media center and resource use, and more time devoted to instructional and leadership activities.

2.2 Financial Resources

On average, Wisconsin library media program operating budgets ranged from \$15,034 at the elementary level to \$37,798 at the high school level. Operating expenditures include resources, subscriptions, fees, rentals, and supplies. Operating expenditures consisted of about three-quarters of the total school library budget; capital expenses amounted to about one-quarter of total expenses, on average. Operating expenditures per student ranged from \$42.95 at the elementary and middle/junior high school levels to \$51.00 at the high school level.

**Table I.3. Library Media Program Operating Budget
2004-05**

Library Media Program	Mean Library Media Program Operating Budget			
	Median Operating Expenditures	Operating Expenditures	Total Library Media Program Budget	Operating Budget Per Student
Elementary school library media programs	\$9,600	\$11,797	\$15,034	\$42.95
Middle/Junior high school library media programs	\$13,697	\$18,439	\$24,511	\$42.93
High school library media programs	\$18,389	\$28,814	\$37,798	\$51.00

The operating budget expenditures of school library media programs at all grade levels were most highly associated with staffing levels and hours and with collection resources. Library media programs with higher operating budgets were likely to have more staff resources, be open more hours a week, and have a greater and more varied print and electronic resource collection.

2.3 Hours of Operation

On average, Wisconsin elementary library media centers were open 38.2 hours a week. Middle/Junior high school library media programs were open, on average, 2.5 hours longer for a total of 40.74 hours per week. High school library media centers were open the longest: an average of 43.58 hours per week. The percent of school library media centers open before school varied by districts, with 8.4 to 14.6 percent of schools having before school hours. Fifteen percent of the elementary schools, 16 percent of the middle/junior high schools, and 28 percent of the high schools had after school hours.

Table I.4. Hours of Operation Per Week

Mean Hours of Operation Per Week	Elementary Schools	Middle/Junior High Schools	High Schools
During school	34.03	36.25	37.55
Before school	2.09	1.89	2.30
After school	2.04	2.60	3.73
Total hours of operation	38.16	40.74	43.58

2.4 Library Media Program Staff Activities

Library media program staff is expected to provide a wide range of services. The questionnaire asked school library media specialists to monitor and record the length of time an activity took place or was performed during a typical week. Those records showed that during a typical week, the average library media program staff spent:

- 29 percent of their time on basic library media management activities, such as circulation of materials, shelving, processing new materials, and retrieving materials for teacher and student lessons and projects
- 24 to 28 percent on teaching and learning activities
- 16 to 23 percent of time on program planning and administration
- 15 percent of time on duties unrelated to school library services (i.e. recess, bus and playground duties)
- 9 to 14 percent of time on information and resource access and delivery of information resources to teachers and students

The learning and teaching activities, which constitute the library media specialists' core activities, show the greatest impact on student performance. Ten to about 14 percent of this instructional time was spent on teaching information skills to students individually or in groups.

Library media specialists who engaged in collaborative activities with teachers spent on average between 9.3 and 12.6 percent of their time on these activities. Library media program staff spent the following percentages of their time in collaborative activities:

- Planning instructional units with teachers: 2.6 to 2.9 percent and
- Teaching cooperatively with teachers: 4.1 to 6.7 percent.

Also, library media specialists spent between 2.6 to 3.4 percent of their time providing staff development for teachers, administrators, and school support staff. The following table shows selected library media program staff services: the percentage of library media programs that provide these services, the average number of hours per week each service is provided, and the average percentage of time per week staff engage in each service.

Table 1.5. Library Media Program Staff Activities Per Week

Library Media Program Staff Activities Per Week	Elementary Schools			Middle/Junior High			High Schools		
	% of Programs	Mean Hours	% Hours	% of Programs	Mean Hours	% Hours	% of Programs	Mean Hours	% Hours
Learning and Teaching:	97.0%	12.33	24.2%	97.6%	17.92	28.1%	96.5%	17.34	23.6%
Planning instructional units with teachers	80.0%	1.31	2.6%	90.0%	1.90	3.0%	86.1%	2.16	2.9%
Teaching cooperatively with teachers	64.0%	2.10	4.1%	84.0%	4.30	6.7%	83.7%	4.05	5.5%
Assisting collaborative student projects	38.2%	0.46	0.9%	49.6%	1.41	2.2%	41.7%	1.82	2.5%
Providing staff development to teachers or other school staff	80.8%	1.32	2.6%	83.2%	1.82	2.9%	86.5%	2.48	3.4%
Teaching information skills and technology literacy to students individually or in groups	93.1%	6.97	13.7%	96.8%	8.34	13.1%	93.4%	7.63	10.4%
Providing technology literacy instruction and training to parents and community members	15.2%	0.16	0.3%	11.2%	0.15	0.2%	16.7%	0.35	0.5%
Information Access and Delivery:	99.2%	22.09	43.3%	98.0%	25.12	39.5%	98.6%	28.13	38.2%
Performing basic library activities (checking in and out, shelving, processing, retrieving)	98.6%	14.88	29.2%	97.6%	18.55	29.1%	97.6%	21.66	29.4%
Identifying materials for instructional units developed by teachers	95.8%	2.48	4.9%	94.8%	3.44	5.4%	96.2%	4.24	5.7%
Providing reading incentive activities for students	92.5%	4.74	9.3%	85.2%	3.13	4.9%	75.3%	2.23	3.0%
Program Administration:	89.3%	16.58	32.5%	89.2%	20.65	32.4%	92.0%	28.16	38.2%
Collection management (selection, inventory, weeding)	85.7%	2.69	5.3%	87.2%	3.47	5.4%	89.9%	6.38	8.7%
Managing library technology	81.6%	2.64	5.2%	82.0%	4.50	7.1%	86.1%	6.75	9.2%
Administering electronic reading programs (Accelerated Reader, Electronic Bookshelf, etc.)	34.1%	0.83	1.6%	33.2%	0.89	1.4%	26.0%	0.74	1.0%
Meeting with other library staff from the building and/or the district	73.3%	0.74	1.4%	63.6%	0.62	1.0%	69.4%	0.96	1.3%

Serving on building and/or district planning and management committees	56.0%	0.47	0.9%	58.0%	0.48	0.7%	69.1%	0.79	1.1%
Meeting with principal or other building or district administrators	57.2%	0.35	0.7%	58.4%	0.39	0.6%	62.5%	0.55	0.7%
Attending faculty or staff meetings and in-services	77.0%	0.70	1.4%	79.2%	0.74	1.1%	81.3%	0.86	1.2%
Performing duties unrelated to school library services	66.9%	8.17	16.0%	58.0%	9.57	15.0%	58.7%	11.12	15.1%
Total Number of Hours		51.00	100.0%		63.70	100.0%		73.63	100.0%

2.5 Library Media Program Policies, Resources, and Use

Wisconsin school library media programs have several policy and procedural guidelines. More than 90 percent of the library media programs have collection development and material selection policies. Between 49 and 55.6 percent of the programs have policy and procedures manuals. Library media programs also have policies addressing Children's Internet Protection Act (CIPA)/Internet safety, copyright, and inter-library loan.

Wisconsin library media programs have diversified collections of print and non-print materials and a wide range of technology equipment including computers. In addition to a print collection of books and periodicals and audio and video media, 73 to 83 percent of the library media programs have electronic database subscriptions. More than 40 percent have encyclopedias and reference titles on CD ROM and between 36 and 48 percent have software packages for student and staff use. In 85 percent of the schools, library media program online resources can be accessed from classroom computers. Such access is also available from all school computers in 70 to 80 percent of the schools. In 60 to 75 percent of the schools, access to online library media program resources is also available to teachers and students from home computers.

Most library media programs (over 90 percent) had computers, printers, televisions, and VCR recorders/players. Laptops were available in 58.4 to 62.5 percent of the library media programs. Scanners were available in 71.2 to 74.3 percent of the programs and data projectors in 76.2 to 81.9 percent of the programs. Between 76.0 and 82.0 percent of the library media programs also had video and digital cameras. PDAs were available in about ten percent of the programs.

Technology is prevalent in Wisconsin school library media programs. On average, elementary schools had 26 computers in the library media center or in adjacent labs under its supervision. Elementary schools also had 57 computers and 10.5 laptops that could access library media program online resources. Middle/Junior high schools had on average 34 computers in the library media center and 127 school computers that could access library media program online resources. High schools had on average 35 computers in the library media center and 228 school computers and 22 laptops that could

access library media program online resources. On average, library media centers also had 14 to 16 laptops, three to four printers, one scanner, and three digital cameras. The average number of data projectors provided in library media programs increased with the grade level from 1.70 in elementary programs to 3.00 in high school programs.

The availability of print, electronic, and online resources draws students and classes to the library media center. On average, 177 individual students out of an average enrollment of 350 students visited elementary library media centers a week; 429 individual students out of an average enrollment of 571 visited middle/junior high school library media centers; and 679 individual students out of an average enrollment of 741 students visited high school library media centers. Across all grade levels, the number of classes visiting the library media centers in a typical week ranged between 85 and 100.

In a typical week, library media specialists provided information skills instruction to 64 individuals at the elementary level; 117 individuals at the middle/junior high level; and 100 individuals at the high school level. The average number of visits by classes for information skills instruction ranged between 60 and 100. During such class visits, library media specialists provide instruction on different topics of information skills. The benefits of flexible scheduling—having student and teacher needs determine how and when the library media center is used—are well-documented in educational practice. According to the survey, about 50 percent of the middle/junior high schools and more than 60 percent of the high school library media programs had flexible scheduling for class visits. However, less than 20 percent of elementary school library media centers used flexible scheduling in their instructional programs.

3. The Relationship Between Library Media Program Variables and Student Performance

The Wisconsin Study demonstrated higher WKCE reading and language arts performance across all grade/school levels in schools with higher levels of library media program staffing. Performance was higher in schools with certified library media specialists than in schools without certified library media specialists. It was higher in schools with full-time library media specialists than in schools with less than full-time media library specialists. Scores were higher in schools with library media program aides and full-time aides than in schools without aides or with less than full-time aides.

The Wisconsin Study, like previous state studies, showed that socio-economic and school variables have the greatest impact on student achievement. The social economic variables include the percentage of minority students, limited English proficient students, and students eligible for subsidized lunch. School variables include teacher-student ratio and the experience levels of teachers. These variables explain a large portion of the variance in WKCE performance at all grade/school levels. At the elementary school level, school and socio-economic variables explained 29 percent of the variance, 22.5 percent at the middle/junior high school level, and 12.1 percent of the variance at the high school level.

Library media program variables explained a small but very significant portion of the variance in WKCE performance. They explained 3.4 percent of the variance in WKCE reading and 3.2 percent in WKCE language arts performance at the elementary level. At the middle/junior high school level they explained 9.2 percent of the variance in WKCE reading performance. At the high school level, they explained 7.9 percent of the WKCE reading variance and an even higher percent, 19.0 percent, of the WKCE language arts variance. At the high school level the impact of a robust library media program was almost 7 percentage points greater than the impact of the socio-economic variables.

Library media program variables explaining the variance in WKCE performance include the following:

Elementary School:

- Number of library media specialists per 100 students
- Number of library media specialist hours per 100 students
- Number of paid staff per 100 students
- Number of paid staff hours per 100 students
- Meetings with principals, colleagues, faculty, and planning and management committees
- Hours of operation before and after school
- Number of print volumes per student
- Number of current print subscriptions per 100 students
- Number of materials checked out per 100 students
- Number of computers in computer labs per 100 students
- Total operational expenditures per student

Middle/Junior High School:

- Number of library media specialists per 100 students
- Number of library media specialist hours per 100 students
- Number of library media paid staff per 100 students
- Number of library media paid staff hours per 100 students
- Number of hours spent in planning, collaborative teaching and assisting teachers
- Number of hours spent instructing, working with and assisting students
- Number of materials checked out per 100 students
- Number of computers in computer labs per 100 students
- Number of print volumes per student
- Number of current print subscriptions per 100 students
- Total operational expenditures per student

High School:

- Number of library media specialists per 100 students
- Number of library media specialist hours per 100 students
- Number of library media paid staff per 100 students
- Number of library media paid staff hours per 100 students

- Number of volunteer hours per 100 students
- Number of hours spent in planning, collaborative teaching and assisting teachers
- Number of hours spent instructing, working with and assisting students
- Number of scheduled and unscheduled individual visits per 100 students
- Number of library media center computers per 100 students
- Number of computers in computer labs per 100 students
- Number of print volumes per student
- Number of current print subscriptions per 100 students
- Number of electronic subscriptions per 100 students
- Total operational expenditures per student

The strength of library media program variables as predictors of student performance was further explored by comparing schools with weak library media programs and those with strong library media programs while controlling for individual school and socio-economic variables. Four socio-economic and school control variables were used: percent of students with limited English proficiency, percent of minority students, percent of students eligible for subsidized lunch; and teacher-student ratio. Tables I.6 and I.7 list the library media program variables that retained a positive and significant correlation with student performance even after controlling for the school and socio-economic factors. Table I.6 lists the number of control variables each library media program predictor “survived” to retain a positive and statistically significant correlation with WKCE performance. A blank cell indicates the absence of a statistically significant correlation between the library media program variable and WKCE performance after controlling for the school variables.

Table I.6. Library Media Program Predictors of Academic Achievement

Library Media Program Predictors	Elementary Schools		Middle/ Junior High Schools		High Schools	
	WKCE Reading	WKCE Lang. Arts	WKCE Reading	WKCE Lang. Arts	WKCE Reading	WKCE Lang. Arts
Staffing						
Library media specialists per 100 students	2	2	4	4		
Library media specialist hours per 100 students			4	4		
Paid staff per 100 students	2	2	4	4		
Paid staff hours					3	3
Paid staff hours per 100 students	3	2	3	3		
Volunteer hours per 100 students	3	3				
Hours of Operation Per Week						
Hours operating during school		1				
Hours operating during school per 100 students	2	2	4	4		
Hours open before and after school	1					1
Total hours of operation		1	4	4		
Total hours of operation per 100 students	2	2				
Staff Activities Per Week						
Hours spent teaching students information skills		2				
Hours spent planning, collaborating and assisting teachers						2
Hours spent planning, collaborating and assisting teachers per 100 students			2	4		
Hours working with and teaching students per 100 students	2	3		1		
Hours spent teaching students information skills						1
Hours spent in meetings					1	
Hours spent in meetings per 100 students			3	3		
Technology						
Library media center computers per 100 students	1	1			2	3
School computers with access to library media program resources						3
School computers with access to library media program resources per 100 students						2
Collection						
Book collection	1	1				1
Book collection per student	1	3	4	3		
Print subscriptions						3
Print subscriptions per 100 students	2	2	1	2	2	
Average age of non-fiction print collection			1			

Library Media Center Use Per Week						
Seating capacity	3	2	4	4		
Visits by individuals	1				2	2
Visits by individuals per student	3	2				
Visits by groups per 100 students	2	2	2	3		
Number of materials checked out	1					
Number of materials used in library	1	1				
Budget						
Operating expenditures per student	1	2	2	2	1	2

Table I.7 lists the number of control variables each library media program predictor “survived” to retain a positive and statistically significant correlation with ACT performance.

Table I.7. Library Media Program Predictors and ACT Performance

Library Media Program Predictors	High School	
	ACT Reading	ACT English
Staffing		
Paid staff	4	4
Staff Activities Per Week		
Hours spent planning, collaborating and assisting teachers	2	2
Technology		
Library media center computers per 100 students	3	3
School computers with access to library media program resources	3	3
Collection		
Book collection	3	3
Library Media Center Use Per Week		
Visits by individuals	3	3
Budget		
Operating expenditures per student	4	4

The Wisconsin Study also compared, at each school level, 25 schools with the highest percentage of students who scored Proficient and Advanced on WKCE reading with the 25 lowest performing schools. At all school levels, the two groups of schools differed demographically. The bottom performing schools were larger and had substantially higher percentages of minority and limited English proficient students and students eligible for subsidized lunch. The top performing schools had more experienced teachers.

Table I.8: Demographic Profile of Highest and Lowest Scoring Schools

High School Predictors	Elementary		Middle/Junior High		High School	
	25 Highest Scoring Schools	25 Lowest Scoring Schools	25 Highest Scoring Schools	25 Lowest Scoring Schools	25 Highest Scoring Schools	25 Lowest Scoring Schools
Percent of White students	92.0%	39.0%	94.0%	41.0%	92.0%	50.0%
Percent Hispanic students	2.0%	28.0%	2.0%	14.0%	2.0%	9.0%
Percent of Black Students	3.0%	24.0%	2.0%	38.0%	3.0%	32.0%
Percent other minority students	2.0%	8.0%	1.0%	7.0%	3.0%	7.0%
Percent total minority students	8.0%	61.0%	6.0%	59.0%	8.0%	50.0%
Percent of students with limited English proficiency	2.3%	25.9%	1.2%	7.3%	0.9%	4.0%
Percent of students eligible for subsidized lunch program	22.3%	26.1%	11.5%	14.2%	8.9%	14.0%
Percent of teachers with at least five years of total experience	84.7%	72.6%	82.4%	69.6%	82.7%	76.3%
Student enrollment (mean)	260	351	467	768	940	1,103
Student enrollment (median)	217	328	416	808	896	1,162

The library media programs also differed in these two groups of schools. The library media programs in the top performing schools had more staff and staff hours, longer hours of operation, larger print and electronic collections, and more and a wider range of technology. Library media specialists spent more hours on instructional activities with teachers and students. They also spent more time on leadership activities including attendance at faculty meetings and participation in school planning and management committees. Library media centers in top performing schools demonstrated greater activity with more individual and group visits and greater use of materials in and outside the center. The top performing schools also had 7.7 to 19.3 percent more program dollars per student.

Library media program variables, in addition to the school and socio-economic variables, play a primary role in explaining the variance in WKCE performance. This study indicates that library media program staffing levels, size of collection and size and range of technology resources, and library media specialist interaction with teachers and students, have a positive association with WKCE performance at all grade levels. While causal relationships cannot be unequivocally proven through correlational studies such as this one, nevertheless, recommendations may be made by combining these statistical results with the experiences of library media specialists in order to chart the best possible course for the future of library media programs and the future of the students. In addition to working to raise all of the variables mentioned above to acceptable levels, the study demonstrated that library media programs can play a very special role in providing enrichment to those students who come from economically disadvantaged backgrounds and who need additional help to develop the skills they will need to succeed.

4. Conclusions and Recommendations

Library media program staff, both certified library media specialists and aides, emerged as the most critical component of the program. The library media specialist as a teacher-librarian, a strongly advocated dual role and one that appears to have the most impact on teaching and student performance, cannot be effectively implemented without adequate administrative and financial support. Programs lacking certified library media specialists and library aides provided fewer and more limited services, and had less impact on student academic achievement. Library media program aides not only perform essential and time-consuming management activities in the library media center, but are critical to “freeing” the library media specialist to devote more time to teacher and student instructional activities.

Programs that were well staffed, especially programs that had full-time professional and support staff, exhibited a greater impact on student academic performance. These programs were available for more hours, engaged in more instructional-related activities and devoted more time to these activities, and served more students and teachers. At all school levels, library media programs with a full-time certified library media specialist did better than those with a part-time specialist. The comparison of top performing schools with low performing schools dramatically illustrates the importance of library media program staffing levels. Top performing schools had nearly 1.5 times more library media program staff per 100 students and about twice as many staff hours per 100 students than low performing schools.

The continuous erosion in library media program staffing levels in Wisconsin public schools is jeopardizing the program and its contribution to higher teacher and student performance. Already, there is a significant gap between recommended library media program staffing levels and actual staffing levels. The gap is especially noticeable in schools with higher enrollments and low socio-economic status; thereby affecting a disproportionate number of middle schools and high schools. Also, the gap in library media resources and services between programs in top performing schools and those in low performing schools is wide and of great concern because of the academic contributions that library media programs with adequate resources do make – contributions to higher student achievement that are greatly needed in low performing schools.

There needs to be greater recognition on the part of district and school administrators of the library media program as an instructional program and of the library media specialist as a teaching faculty member. To ensure that library media programs contribute to and benefit teachers and students at all schools, Wisconsin should develop a set of guidelines addressing minimal standards for library media program resources, staff, and operations. Such guidelines will help programs assess their own resources and identify areas where additional resources are needed. In developing these guidelines, Wisconsin can review public school library standards and guidelines that other states developed and implemented. When developing these standards, Wisconsin should analyze the library media programs in top performing Wisconsin schools and the programs identified in this

study as exemplifying best practice and incorporate them into a design for minimal attributes for robust, effective school library media programs.

II. STUDY OBJECTIVES AND METHODOLOGY

The objectives of the study, as defined in the Wisconsin Department of Public Instruction (DPI) Request for Proposal, were to examine the leadership and instructional roles of Wisconsin public school library media specialists required for a robust information (library media) and technology literacy program and the direct relationship on student achievement and learning in all types of public school districts. The study aims to provide empirical evidence of the impact of a quality robust school library program on student learning, through three study methodologies:

- Statewide survey of certified school library media specialists.
- Survey of students and teachers in a representative sample of elementary, middle/junior high and high schools.
- Case studies of library media programs representing best practice.

This report addresses the statewide survey of school library media specialists.

1. Research on Libraries and Student Performance

Since 1999, 14 states have conducted studies on the impact of school libraries on students' academic performance. The 14 states include Alaska (1999), Colorado (2000), Iowa (2000), Massachusetts (2000), Pennsylvania (2000), Minnesota (2001), Texas (2001), New Mexico (2002), Oregon (2002), Florida (2003), Michigan (2003), Missouri (2003), North Carolina (2003), Ohio (2004), and Illinois (2005). The majority of these studies used a methodology developed by Keith Curry Lance (Lance et.al. *The School Librarian As an Agent of Academic Achievement in Alaska School*, Alaska State Library, Juneau, Alaska 1999).

These studies consistently demonstrated that the school library plays a vital role in enhancing student learning and academic performance. The studies also identified the characteristics of an effective school library program; that is, a library program that facilitates learning and academic achievement. Lance's "library predictors of academic achievement," consist of six broad components:

- Library staffing consisting of both professional and support staff. Qualified professional staff has required academic credentials, a teaching certificate and experience, and a library certificate/endorsement
- Support staff who meet minimal education requirement defined by No Child Left Behind and all applicable state requirements

- Library staff activities consisting of:
 - Teaching and learning
 - Information access and delivery
 - Program administration
- Hours of library operations: before, during and after school and during the summer
- Library program participation by teachers and students including individual and class visits and information skills instruction
- Library resources consisting of print and non-print materials sufficient to meet curriculum and student needs
- Technology in the library and throughout the school providing access to school library catalog and all school library online resources

The librarian, who is the key motivator behind an effective library program, is “an empowered and empowering” figure, according to Lance, in effective library programs. Such a librarian serves in multiple leadership roles:

- As a school leader, the librarian meets regularly with the principal, attends faculty meetings and participates as a member of key planning, instructional, technology and professional committees.
- As a program administrator, the librarian oversees a library program with adequate staffing and resources.
- As an information navigator, the librarian selects print and electronic resources that support the school’s curriculum and standards and provides staff development and information skills training to teachers and students.
- As a technology facilitator, the librarian identifies and selects appropriate web sites and online databases and provides a bridge between students, teachers, online information and curriculum and instruction.
- As a collaborative teacher and learner, the librarian collaborates with teachers in planning and the delivery of instruction, and trains teachers in the use of information resources and information technology tools.

The most recent study in the series of studies on the link between libraries and student performance was conducted in Illinois in 2005 and titled *Power Libraries Make Powerful Learners*, Illinois School Library Media Association, Canton, Illinois, 2005. [www.islma.org/pdf/ILStudy2.pdf] This study clearly demonstrates the critical role that library resources and librarian activities play in enhancing student performance. The Illinois study shows that students performed better on state tests at all grade levels where:

- School libraries were staffed more fully
- Libraries had flexible scheduling
- Librarians spent more time on instructional and collaborative tasks
- Libraries had more resources as represented by collection size, technology and funding
- Students used the library to enhance information literacy skills

Another recent study in Michigan determines the role and contribution of the school librarian is central. *The Impact of Michigan School Librarians on Academic Achievement: Kids Who Have Libraries Succeed* (Library of Michigan, Lansing, Michigan, 2003) or [http://www.michigan.gov/documents/hal_lm_schllibstudy03_76626_7.pdf] demonstrates that the presence of a qualified librarian makes a tremendous difference in student performance on reading test scores. Students in schools with a qualified librarian had higher test scores than students in schools without a librarian. Library programs in schools with adequate professional and support staff are better developed, staff spends more time engaging in instructional and collaborative activities and technology is used to extend the reach of the library. The Michigan study supports the finding that the school library serves a critical instructional role.

2. Study Methodology

The Wisconsin study followed the methodology developed and implemented in the studies conducted by Lance, Rodney, and Hamilton-Pennell and refined and used by Ester Smith in the Texas study: *Texas School Libraries: Standards, Resources, Services, and Students' Performance* (Texas State Library and Archives Commission, 2001).

2.1 Questionnaire

The questionnaire used in the Wisconsin study was similar to the questionnaire used in the Texas study. The Texas study questionnaire was modeled after one initially developed by Keith Curry Lance. The questionnaire was modified to represent the current state of library media programs and technology in Wisconsin. The questionnaire consisted of nine sections. (See Appendix A for a copy of the questionnaire.)

Section I—**Identifying Information**—asked for the name of the school and district, school level, grade levels, whether the school has more than one library, and respondent's name, position, and contact information.

Section II—**Library Management**—addressed library media center size and capacity, method of budget determination, communications with other libraries in and outside the district, district school board involvement in library media program policies, existence of

a policy and procedures manual, presence of an advisory committee, and availability of a district library media program coordinator. The section also asked about program representation on key district and school curriculum and leadership committees, meetings with the principal, principal support of the program, regular communications about program to constituencies, and membership in professional associations.

Section III—Library Staff—asked for data on library media program staffing including paid professional and support staff as well as adult and student volunteers. Data requested involved number of staff and volunteers, number full-time and part-time, staff and volunteer hours per week, and the highest education and certification levels of paid staff members.

Section IV—Service Hours per Typical Week—requested data on the hours of operation in a typical week, including hours open during school, before school, and after school, and during the summer. Information pertaining to community access was also requested.

Section V—Staff Activities per Typical Week—listed 17 different types of activities library media program staff are likely to perform. Library media specialists were asked to record the number of hours in a typical week all paid program staff spend on each activity. The activities were divided into three categories: teaching and learning, information access and delivery, and program administration

Section VI—Library Use per Typical Week—addressed a range of library media center uses in a typical week, such as number of individual and group visits to the library media center, number of information skills instruction contacts with individuals and groups, number of items used in the library media center or checked out, and number of items loaned by or to the center. This section also asked for data on percentage of flexible scheduled class visits.

Section VII—Library Technology—inquired about the availability of computers and other technology equipment in or under library media program supervision, as well as equipment located throughout the school that can access networked library media center resources. Technology equipment included computers, laptops, computers with accommodations for students with disabilities, scanners, printers, data projectors, DVD and VCR recorders/players, televisions, video and digital cameras, and PDAs. This section also addressed the type and volume of technology available in the classroom, computer labs, and distance learning classrooms and the type of personnel overseeing and coordinating technology within and outside of the school library media center.

Section VIII—Library Collection—addressed categories and size of the library media center collection, including print volumes, print subscriptions to newspapers and magazines, electronic subscriptions, encyclopedias and reference titles on CD-ROM or laser disc, video materials, e-books, and software packages. Information was also requested on the age of the nonfiction collection, type and scope of access to catalog and

online databases, and link to and use of resources such as BadgerLink, Curriculum Resource Center and MarcoPolo.

Section IX—**Library Operating Expenditures and Capital Outlay**—asked for data on the program’s 2004-05 operating budget including books, newspapers, periodicals and magazines, reference materials, electronic format materials, non-print materials (e.g. audio, video, and microform), other operating expenditures (i.e. dues and fees). This section also collected information on the capital outlay budget, including equipment and other capital purchases such as furniture and shelving.

2.2 Data Collection

Data were collected through an online survey delivered to all certified Wisconsin school library media specialists. The Wisconsin Department of Public Instruction (DPI) informed all school library media specialists and district coordinators/directors about the survey on several occasions in early 2005 and publicized the study in meetings, conferences and electronically. DPI compiled a database of certified library media specialists and district library media coordinators/directors consisting of school and district names, library media specialist/coordinator names and e-mail addresses. The database consisted of a total of 1,306 names; 1,083 were names and e-mail addresses of library media specialists.

The online questionnaire was available for response during May and June 2005. WDPI sent an electronic letter to all individuals in the database explaining the objectives of the study and instructions on how to access and complete the online questionnaire. The letter emphasized the importance of the study and urged library media specialists to complete the questionnaire. The letter also provided information on telephone and e-mail access to technical assistance respondents may need with completion of the questionnaire. Wisconsin DPI e-mailed several reminder letters, urging library media specialists to complete the online questionnaire.

Eight hundred and fifty five (855) out of 1,083 library media specialists completed online questionnaires for 1,043 libraries, resulting in a 78.9 percent response rate. Of these 855 library media specialists, 135 provided information on two or more libraries. Questionnaires were completed for library media programs in elementary, middle/junior high and high school library media programs, as shown in the following table.

Table II.1. Type of Schools Responding to the Survey

School Type	Number (1,043)	Percent
Elementary schools	505	48.4%
Middle/Junior high schools	191	18.3%
High schools	197	18.9%
Combined elementary-middle/junior high school	59	5.6%
Combined middle/junior high and high school	51	4.9%
Combined elementary-middle/junior high/high school	40	3.8%

2.3 Wisconsin Information Network for Successful Schools (WINSS) Data

Survey data provided by library media specialists through the online questionnaire were triangulated with data extracted for each of the responding schools from the Wisconsin Information Network for Successful Schools (WINSS) for 2003-04. WINSS is an electronic information resource that has been created to help educators, parents and community members to educate the hearts and minds of all children in Wisconsin. WINSS data were obtained in three areas:

- Staffing:
 - Total number of teachers (FTE)
 - Number and percentage of teachers with at least five years total experience
 - Number and percentage of teachers with at least five years experience in district
 - Number and percentage of teachers with master's or higher degrees
- Student characteristics:
 - Enrollment
 - Number and percentage of students by gender
 - Number and percentage of students by racial/ethnic affiliation
 - Number and percentage of students eligible for subsidized lunch
 - Number and percentage of students English proficient
 - Number and percent of students with limited English proficiency
 - Attendance rate
- Academic performance on Wisconsin Knowledge and Concepts Exams (WKCE): grades 4, 8, and 10 and on ACT exams:
 - School performance in Reading by Minimum, Basic, Proficient and Advanced
 - School performance in Language Arts by Minimum, Basic, Proficient and Advanced
 - School performance in Math by Minimum, Basic, Proficient and Advanced
 - School performance in Social Studies by Minimum, Basic, Proficient and Advanced
 - School performance in Science by Minimum, Basic, Proficient and Advanced
 - ACT scores: English, Reading, Math, Science, composite

2.4 Study Design

The conceptual design of the study is three-tiered. It consists of:

- Spheres of influence

The study has two spheres of influence: the library media program and the school where the program is located

- Indicators

Indicators are elements that stipulate whether the respective sphere of influence should have a positive effect on students' academic performance. For example, a well-staffed library media center is an indicator of a good library media program that would be more likely to encourage and facilitate academic performance than a poorly staffed library media program.

The indicators delineated for the library media program sphere of influence include:

- Policies and procedures
- Facilities
- Hours of operation
- Staff (type, certification, and education background)
- Staff activities
- Collaboration with public library
- Library media program usage
- Library media program material resources
- Technology resources
- Library media program budget

The indicators defined for the school sphere of influence include:

- School staff
- Student characteristics
- Students' economic status
- Student performance on WKCE and on ACT

- Measures

Measures are objective elements describing the indicator. Staffing levels, types of staff, hours of work, and staff qualifications are measures of a well-staffed library media program.

The spheres of influence, indicators, and measures are presented in Table II.2.

Table II.2. Spheres of Influence, Indicators and Measures

Spheres of Influence	Indicators	Measures
Library Media Program		
	Policies and Procedures	
		Preparation and submission of library media program budget
		Budget rationale
		Board approved copyright policy
		Board approved resource sharing policy
		Board approved Internet acceptable use policy
		Board approved collection development policy
		Materials selection policy
		Weeding policy
		Reconsideration for challenged materials policy
		Board approved library media program policy and procedures manual
		Advisory committee
	Facilities	
		Seating capacity per 100 students
		Square feet per 100 students
		Ability to accommodate full class and other activities concurrently
	Hours of Operation	
		Number of hours library media center is open per week, before, during and after school
		Summer hours
		Hours library media program is open to community
	Staff	
		Number of full-time library media specialists
		Number of part-time library media specialists
		Number of library media specialists per 100 students
		Hours library media specialists spend per week per 100 students
		Number of full-time support staff
		Number of part-time support staff
		Number of support staff per 100 students
		Hours support staff spend per week per 100 students
		Number of adult and student volunteers per 100 students

Spheres of Influence	Indicators	Measures
		Number of hours volunteers spend per week per 100 students
		Academic degrees and certifications of library media specialists and support staff
	Staff Activities: type and number of hours devoted to activity per week	
		Planning instructional units with teachers
		Teaching cooperatively with teachers
		Assessing collaborative student projects
		Providing staff development to teachers and staff
		Teaching information skills and technology literacy to students
		Teaching technology literacy to parents and community members
		Identifying materials for instructional units developed by teachers
		Providing reading incentive activities
		Locating books for students participating in electronic reading programs
		Managing library technology
		Managing library media program collection
		Serving on building or district planning and management committees
		Meeting with principal/administrators
		Meeting with library media program staff in or outside district
		Attending faculty/staff meetings and in-services
		Performing basic library activities
		Participation in school district improvement plan committee
		Participation in school/district technology committee
		Participation in curriculum committee
	Collaboration with Other Libraries	
		On going communications with public, college, special and other school libraries
		Cooperative summer reading program with public library

Spheres of Influence	Indicators	Measures
	Library Media Center Use	
		Number of visits by individuals per week per student
		Number of visits by groups per week per 100 students
		Number of individual information skills instruction contacts per week per student
		Number of group information skills instruction contacts per week per 100 students
		Number of materials checked out and used in the library media center per week per student
		Number of materials loaned out and number requested from other library media programs per week per 100 students
		Percent of classes visiting library media center per week that are flexibly/regularly scheduled
	Library Media Program Print and Non-print Resources	
		Number of print volumes per student
		Current subscriptions to periodicals, newspapers and magazines per 100 students
		Number of electronic subscriptions
		Number of encyclopedias and reference titles on CD-ROM per 100 students
		Audio materials per 100 students
		Video/DVD materials per 100 students
		Software packages for use in library per 100 students
		Average age of non-fiction print collection
		Access of library media program catalog and online databases from classrooms and outside of school
		Link to Badgerlink
		Instruction in Badgerlink, DPI Curriculum Resource Center and MarcoPolo to students, faculty and administrators
	Technology Resources	
		Number of computers in or under library media program supervision per 100 students
		Number of computers in school from which library networked resources can be accessed per 100 students

Spheres of Influence	Indicators	Measures
		Number of laptops in or under library media program supervision per 100 students
		Number of computers and laptops with special accommodations for students with disabilities in or under library media program supervision per 100 students
		Number of other electronic equipment such as scanners, printers, data projectors, PDAs in or under library media program supervision per 100 students
		Number of televisions, DVD and VCR recorders/players in or under library media program supervision per 100 students
		Number of video and digital cameras in or under library media program supervision per 100 students
		Number of computers in typical classroom
		Number of computer labs in school
		Number of computers in labs
		Availability of distance learning classroom or mobile distance learning system
	Library Media Program Budget	
		Operating expenditures by category per student
		Capital outlay expenditures per student
School		
	School Characteristics	
	School Staff	
		Total number of full-time equivalent teachers
		Percentage of teachers with at least five years total experience
		Percentage of teachers with at least five years experience in district
		Percent of full-time teachers with MS or higher degrees
	Student Characteristics	
		Number of students
		Percentage of White students
		Percentage of Black students
		Percentage of Hispanic students
		Percentage of Native American students
		Percentage of Asian American students

Spheres of Influence	Indicators	Measures
		Percent of students with limited English proficiency (LEP)
		2003-04 attendance rate
		Percentage eligible for reduced lunch
	Performance on WKCE and ACT	
		Reading
		Language Arts
		ACT

2.5 Statistical Analysis

Data were analyzed separately for elementary, middle/junior high schools, and high schools. A variety of statistical analyses were used.

Tests of Statistical Significance

Tests of significance are conducted to determine whether the results are representative of the entire universe; that is, all elementary school library media programs, all middle/junior high programs, all high school programs rather than just those library media programs that completed the survey. Tests of statistical significance are reported as probability (designated by a “p”). Typically, probability is reported as $p < .05$, $p < .01$, and $p < .001$. A probability of $p < .05$ refers to a 95 percent certainty; $p < .01$ refers to a 99 percent certainty; and $p < .001$ refers to 99.9 percent certainty that the results are representative.

Tests of significance are reported in association with Pearson product-moment correlation coefficients in a bivariate correlation.

Bivariate Correlation

A bivariate correlation examines the strength and direction of a relationship between two variables. The bivariate correlation coefficient shows the degree to which variation in one variable is related to variation in the second variable. Pearson’s correlation coefficient (designated as “r”) ranges from -1.00 to $+1.00$. A negative r value points to a negative relationship between the two variables: that is, as one variable increases the second variable declines. A positive r value points to a positive relationship between the two variables; that is, an increase in one variable is associated with an increase in the second variable. The report of the r value of the relationship between two variables also includes an indication of its statistical significance.

In addition, r-squared, which ranges from 0 to 1.00, measures the proportion of variance in one variable that is explained by the other variable.

Partial Correlation

Partial correlation is a single measure of association describing the relationship between two variables while adjusting for the effects of one or more additional variables. Partial correlation helps identify variables that may affect the relationship between two variables and allows us to remove their effect from the relationship between the two variables. The assumption underlying partial correlation is that the relationship between these variables is linear. By identifying such intervening variables, partial correlation helps to determine causality.

Factor Analysis

Factor analysis is used to (1) to explore and detect patterns of variables; (2) to confirm hypotheses about the structuring of variables; and (3) to construct indices for use as new variables. Factor analysis is useful for establishing the relationship among groups of related variables that were measured on different scales (for example, percentage and dollars).

Factor analysis reports the loading of each variable on a factor and its direction. A high loading signifies the weight given to a variable. In addition, factor analysis determines the percentage of variance accounted for by each factor.

Regression

Multiple regression analyzes the relationship between a dependent variable (e.g. percentage of students who scored Advanced in reading) and two or more independent variables (e.g. library media program print resources, electronic resources, hours of operation, staff activities). Multiple regression helps evaluate the contribution of a specific variable or set of variables, find a structural relationship, and provide an explanation for complex relationships among multiple variables. Through multiple regression we can obtain a prediction equation, find out how accurate it is, and determine what percent of the variance in the dependent variable is accounted for by each of the independent variables. It also helps us simplify the prediction equation by excluding independent variables that do not add substantially to prediction accuracy once certain independent variables are included.

III. SCHOOL LIBRARY MEDIA PROGRAM STAFFING

Every school regardless of size should maintain a library media program staffed by a certified library media specialist (LMS). PI 8.01(2) (h), the administrative rule for Wisconsin Statute 121.02(1)(h) states that school district boards shall “provide library media services to all pupils as follows: to pupils in grades kindergarten through 6, ...performed by or under the direction of licensed library and audiovisual personnel; and to pupils in grades 7 through 12, library media services which are performed by licensed library and audio visual personnel.”

The Wisconsin Department of Public Instruction, although not mandated by statute, recommends the same professional staffing for elementary, middle and high school library media centers.

Library media program staffing levels recommended by the Wisconsin Department of Public Instruction are based on school size (number of students). The guidelines divide schools into four size categories and specify staffing ranges for each category.

- Library media program staff in schools with an enrollment of up to 299 students should range from 0.5 to 1.0 certified library media specialist and 1.0 to 1.5 support staff.
- Library media program staff in schools with an enrollment of 300 to 799 students should range from one to two certified library media specialists and two to three support staff.
- Library media program staff in schools with an enrollment of 800 to 1,399 students should range from 2.0 to 2.5 certified library media specialists and 3.0 to 3.5 support staff.
- Library media program staff in schools with an enrollment between 1,400 and 2,100 students should range from 2.5 to 3.0 certified library media specialists and 4.0 to 4.5 support staff.

Table III.1. School Size and Library Media Program Staff

Enrollment	Professional Staff	Support Staff	Total Staff
Up to 299	0.5 to 1.0	1.0 to 1.5	1.5 to 2.5
300 – 799	1.0 to 2.0	2.0 to 3.0	3.0 to 5.0
800 – 1,399	2.0 to 2.5	3.0 to 3.5	5.0 to 6.0
1,400 – 2,100	2.5 to 3.0	4.0 to 4.5	6.5 to 7.5

SOURCE: Information & Technology Literacy: A Collaborative Planning Guide for Library Media and Technology, Wisconsin Department of Public Instruction, 2002.

Of the 1,043 library media programs that responded to the survey, 17 schools had no library media specialists and 130 library media programs did not have any aides. In comparison to the staffing guidelines, schools with 800 or more students were

understaffed with regard to library media specialists: about one percent of elementary schools, 18.0 percent of the middle/junior high schools, and 35.8 percent of the high schools had fewer library media specialists than the recommended guidelines based on enrollment.

Table III.2. Number of Schools Without Library Media Specialists or Aides

	Number of Schools	No Library Media Specialists		No Library Media Program Aides	
		Number	Percent	Number	Percent
Elementary Schools	505	10	2.0%	63	12.5%
Middle/Junior High Schools	250	5	2.0%	33	13.2%
High Schools	288	2	0.7%	34	11.8%

1. Library Media Program Staffing

1.1 Elementary School Library Media Program Staff

Library media program staffing levels varied by grade level. At the elementary school level, library media programs had, on average, one library media specialist and 1.07 aides for a total of 2.07 staff members. On average, less than one-half of the elementary programs had a full-time library media specialist and one-third had a full-time aide. Thirteen percent of the elementary school library media programs had only one staff member, 69.9 percent had two staff, and 16.6 percent had three or more staff members. When all hours were totaled, elementary school library media program staff worked 51 hours per week, on average: library media specialists worked 27.7 hours a week and library media program aides worked 28.4 hours per week.

Table III.3. Elementary School Library Media Program Staff

Staff	Means/Percent
Number of library media specialists	1.00
Number of library media program aides	1.07
Total Number of library media program staff	2.07
Percent with a full-time library media specialist	47.1%
Percent with a full-time aide	32.9%
Number of library media programs with one staff member	67
Percent of library media programs with one staff member	13.3%
Number of library media programs with two staff members	353
Percent of library media programs with two staff members	69.9%
Number of library media programs with three or more staff	84
Percent of library media programs with three or more staff	16.6%
Library media specialist's person hours per week	27.7
Library media program aide hours per week	28.4
Library media program total staff person hours per week	51.00

To expand their staffing resources, elementary school library media programs used volunteers. Forty-five percent of the elementary school library media programs used adult

volunteers and 27.5 percent used student volunteers. On average, elementary school library media programs with adult volunteers had 3.36 adult volunteers, and those with student volunteers had about 6.71 student volunteers in a typical week. In these library media programs, volunteers worked about 8.39 total hours a week. Volunteers supplemented paid staff hours by about 30 percent.

Table III.4. Elementary School Library Media Program Volunteers

Library Media Program Volunteers	Means/Percent
Number of adult volunteers (N=230)	3.36
Range of adult volunteers	1 - 37
Number of student volunteers (N=139)	6.71
Range of student volunteers	1 - 40
Number of library media program volunteers (N=275)	6.03
Number of hours adult volunteers work per week (N=234)	7.49
Number of hours student volunteers work per week (N=137)	4.79
Total number of volunteer hours per week (N=287)	8.39
Percent of library media programs with adult volunteers (N=230)	45.5%
Percent of library media programs with student volunteers (N=139)	27.5%

Elementary school enrollment ranged from 43 to 1,551 students. The average number of students was 350 and the median was 346. Overall, ten elementary schools (2.0 percent) had no certified library media specialists and 63 elementary school media programs (12.5 percent) had no aides.

Thirty-seven percent of the elementary schools had an enrollment of up to 299 students. The staffing guidelines in *Information & Technology Literacy: A Collaborative Planning Guide for Library Media and Technology School Information and Technology* recommend that library media programs in schools of this size have 0.5 to 1.0 professional staff and 1.0 to 1.5 support staff. Nine of the elementary schools of this size (4.8 percent) did not have a certified library media specialist, 21 (11.2 percent) did not have a library aide and 75 (40.1 percent) had only one part-time aide. One-third of the schools (62) had a full-time library program aide. Hence, 51.2 percent of the schools did not meet the required level of aides.

Sixty-two percent of elementary schools had between 300 to 799 students. Staffing guidelines recommend that library media programs in schools of this size have 1.0 to 2.0 professional staff and 2.0 to 3.0 support staff. One school (0.3 percent) did not have a library media specialist. Sixty-three percent of the schools had one full-time library media specialist and only one school (0.3 percent) had two full-time library media specialists. Overall, 306 out of 314 schools (97.4 percent) had either one full-time or part-time library media specialist while seven schools (2.2 percent) had two library media specialists.

Although staffing guidelines recommend that schools with 300 to 799 students have two to three library media program aides, 42 schools (13.4 percent) did not have any library

media program aides, 104 (33.1 percent) of the schools had only one full-time library aide, and only two of the 314 schools (0.6 percent) in this size category met the recommendation of having two full-time aides. Overall, 71 percent of the schools (223) had only one aide either full-time or part-time; 40 schools (12.7 percent) had two aides, and nine schools (2.9 percent) had three aides. Two hundred of the schools (63.7 percent) met the recommendation of having 1.0 to 2.0 library media specialists but only 49 of the schools (15.6 percent) had two to three aides, as recommended.

Only three (0.6 percent) of the 505 elementary schools that responded to the survey had 800 to 1,399 students. The DPI staffing guidelines recommend that library media programs in schools of this size have 2.0 to 2.5 professional staff and 3.0 to 3.5 support staff. Only one of these schools met this criterion, having two full-time library media specialists. The other two schools had one full-time library media specialist. None of the schools had a sufficient number of aides, having between one and three part-time aides. Only one elementary school had more than 1,400 students. The staffing guidelines recommend that library media programs in schools of this size have 2.5 to 3.0 professional staff and 4.0 to 4.5 support staff. This school, however, had only a part-time library media specialist and one part-time aide.

Table III.5. Elementary School Size, Guidelines and Library Media Program Staff

School Size	Number /Percent of Schools (505)	Library Media Program Staffing Guidelines	Number of Staff	Library Media Specialists			Library Media Program Aides		
				Full-time	Part-time	Total	Full-time	Part-time	Total
Up to 299	187 37.0%	0.5 – 1.0 certified library media specialist + 1.0 – 1.5 aides	1	37 19.8%	139 74.3%	176 94.1%	61 32.6%	88 47.1%	136 72.7%
			2	0 0.0%	2 1.1%	2 1.1%	1 0.5%	22 11.8%	28 15.0%
			3 or more	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 0.5%	2 1.1%
300 to 799	314 62.2%	1.0 – 2.0 certified library media specialist + 2.0 – 3.0 aides	1	199 63.4%	109 34.7%	306 97.4%	102 32.5%	152 48.4%	223 71.0%
			2	1 0.3%	5 1.6%	7 2.2%	2 0.6%	27 8.6%	40 12.7%
			3 or more	0 0.0%	0 0.0%	0 0.0%	0 0.0%	6 1.9%	9 2.9%
800 to 1,399	3 0.6%	2.0 – 2.5 certified library media specialists + 3.0 – 3.5 aides	1	2 66.7%	0 0.0%	2 66.7%	0 0.0%	1 33.3%	1 33.3%
			2	1 33.3%	0 0.0%	1 33.3%	0 0.0%	1 33.3%	1 33.3%
			3 or	0	0	0	0	1	1

			more	0.0%	0.0%	0.0%	0.0%	33.3%	33.3%
1,400 to 2,100	1 0.2%	2.5 – 3.0 certified library media specialists + 4.0 – 4.5 aides	1	0 0.0%	1 100.0 %	1 100.0 %	0 0.0%	1 100.0 %	1 100.0%
			2	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
			3 or more	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%

A large percentage of elementary schools fell short of the DPI’s recommended library media program professional and support staffing levels: 128 elementary schools (25.4 percent) did not have the requisite number of library media specialists and 246 (48.7 percent) did not have the recommended number of library aides.

To measure the role and effect of library media specialists on library media program performance, staffing levels and hours worked in a week were examined at “per 100 students” to correct for enrollment differences. The number of library media specialists and the number of hours they worked per week were correlated with a set of library media program variables.

Library media specialist staffing resources were significantly and positively associated with the size of the library media program collection, technology, and budget funding resources. Library media programs with more library media specialists per 100 students also had:

- A larger operating budget per student
- Library media center was open more hours per week
- More print resources such as books, encyclopedias, reference books and subscriptions to periodical, newspapers, magazines and journals per 100 students
- More electronic resources such as electronic subscriptions per 100 students, video and DVD materials per student, and software packages per 100 students
- Greater access to networked library media program resources from computers in the school
- Greater library media center use through individual and class visits, information skills instruction contacts and use of materials
- More technology resources in or under library media program supervision per 100 students, including computers in the library media center or under its supervision, scanners, printers, data projectors and digital cameras

Table III.6. Elementary School Library Media Specialists Correlations

Correlation with:	Elementary School Library Media Specialists Per 100 Students	Elementary School Library Media Specialist Hours Per 100 Students
	<i>Pearson Correlation (r)</i> <i>Probability (p)</i> <i>Number (n)</i>	<i>Pearson Correlation (r)</i> <i>Probability (p)</i> <i>Number (n)</i>
Library media program operational expenditures per student	.797 .000 504	.877 .000 504
Total number of hours library media center is open during school hours	.940 .000 486	.857 .000 486
Library Media Program Collection:		
Books (print volumes including encyclopedias and reference) per student	.248 .000 496	.101 .024 496
Current print subscriptions to periodicals, newspapers, magazines, journals per 100 students	.263 .000 497	.241 .000 497
Electronic subscriptions per 100 students	.563 .000 493	.550 .000 493
Video/DVD materials per student	.351 .000 486	.358 .000 486
Software packages for teacher and student use per 100 students	.752 .000 481	.829 .000 481
Library Media Center Use in Typical Week:		
Number of scheduled and unscheduled individual visits to library media center per student	.254 .000 496	.191 .000 496
Number of scheduled and unscheduled class visits to library media center per 100 students	.776 .000 500	.758 .000 500
Number of scheduled and unscheduled class information skills instruction contacts with classes or groups 100 students	.751 .000 494	.843 .000 494
Number of materials checked out during most recent week per 100 students	.495 .000 491	.554 .000 491
Number of materials used in library media center during most recent week per 100 students	.495 .000 491	.554 .000 491
Number of materials loaned to other library media programs per 100 students	.200 .000	.211 .000

	492	492
Number of materials requested from other library media programs per 100 students	.226 .000 493	.226 .000 493
Library Media Program Technology:		
Number of computers in or under library media program supervision per 100 students	.707 .000 497	.803 .000 497
Number of scanners in or under library media program supervision per 100 students	.845 .000 474	.914 .000 474
Number of printers in or under library media program supervision per 100 students	.560 .000 488	.587 .000 488
Number of data projectors in or under library media program supervision per 100 students	.542 .000 480	.607 .000 480
Number of digital cameras in or under library media program supervision per 100 students	.684 .000 485	.768 .000 485
Number of computers in school from which networked library media program resources can be accessed per 100 students	.748 .000 479	.815 .000 479

1.2 Middle/Junior High School Library Media Program Staff

On average, middle/junior high school library media programs had 2.14 paid staff. Library media program staff consisted, on average, of 1.0 certified library media specialist and 1.14 library aides. Fourteen percent of the middle/junior high schools had a total of one library staff member, 65.6 percent had two staff members, and 14.8 percent had three or more staff members. Sixty-eight percent of the middle/junior high school library media programs had a full-time certified library media specialist and 52.4 percent had a full-time aide. On average, library media program staff provided 63.7 hours of service per week: library media specialists provided 32.2 hours of service a week and library media aides provided 31.2 hours.

Table III.7. Middle/Junior High School Library Media Program

Staff	Means/Percent
Number of library media specialists	1.00
Number of library media program aides	1.14
Number of library media program staff	2.14
Percent with a full-time library media specialist	68.4%
Percent with a full-time aide	52.4%
Number of library media programs with one staff member	36
Percent of library media programs with one staff member	14.4%
Number of library media programs with two staff members	164
Percent of library media programs with two staff members	65.6%
Number of library media programs with three or more staff	37
Percent of library media programs with three or more staff	14.8%
Library media specialist's person hours per week	32.2
Library media program aide hours per week	31.2
Library media program total staff person hours per week	63.7

In addition, 29.2 percent of the middle/junior high school library media programs had adult volunteers and 39.6 percent had student volunteers. On average, middle/junior high school library media programs with adult volunteers had 2.41 adult volunteers working 4.93 hours per week, and library media programs with student volunteers had 6.45 student volunteers working 8.16 hours per week. In these library media programs, volunteers worked 13 hours per week on average.

Table III.8. Middle/Junior High School Library Media Program Volunteers

Library Media Program Volunteers	Means/Percent
Number of adult volunteers (N=73)	2.41
Range of adult volunteers	1 - 12
Number of student volunteers (N=99)	6.45
Range of student volunteers	1 - 35
Number of library media program volunteers (N=128)	6.20
Number of hours adult volunteers work per week (N=72)	4.93
Number of hours student volunteers work per week (N=99)	8.16
Total number of volunteer hours per week (N=133)	13.09
Percent of library media programs with adult volunteers (N=73)	29.2%
Percent of library media programs with student volunteers (N=99)	39.6%

Middle/Junior high schools ranged in size from 113 to 1,201 students. On average, middle/junior high schools had 571 students, with a median of 560 students. Of the 250 middle/junior high schools, five (2.0 percent) did not have a library media specialist and 33 (13.2 percent) did not have aides. Thirty-two middle/junior high schools (12.8 percent) had enrollment of up to 299 students. Staffing guidelines in *Information & Technology Literacy: A Collaborative Planning Guide for Library Media and*

Technology recommend that library media programs in school of this size have 0.5 to 1.0 professional staff and 1.0 to 1.5 support staff. Of the 32 schools, three (9.4 percent) did not have a library media specialist; six (18.7 percent) had a full-time library media specialist, 28 (87.5 percent) had either a part-time or a full-time library media specialist, and one (3.2 percent) had two part-time library media specialists. Four of the 32 schools (12.5 percent) did not have any aides, eight (25.0 percent) had only a part-time aide, 13 (40.6 percent) had a full-time aide, and seven (21.9 percent) had two part-time aides. Nearly 40 percent of the schools did not meet the recommended staffing level for library support staff.

More than 69 percent of the middle/junior high schools (173) had between 300 and 799 students. Staffing guidelines recommend that library media programs in schools of this size have 1.0 to 2.0 professional staff and 2.0 to 3.0 support staff. Two of the schools (1.2 percent) did not have any library media specialists and 23 schools (13.3 percent) had no library aides. Seventy-one percent of these schools had a full-time library media specialist and 50.3 percent had a full-time aide. More than two-thirds of the schools (118) had only one aide; 32 schools (18.5 percent) had two or more aides. More than 81 percent of the schools did not meet the recommended level of staffing for library media program aides.

Forty-five schools (28.0 percent) had between 800 and 1,399 students. Staffing guidelines recommend that library media programs in schools of this size have 2.0 to 2.5 professional staff and 3.0 to 3.5 support staff. All schools in this size category had certified library media specialists but six schools (13.3 percent) did not have any aides. None of the schools met the recommended staffing level for library media specialists for schools with 800 to 1,399 students. About nine percent or four schools had only one part-time media specialist. Only six of the schools (13.3 percent) had three or more aides, as suggested in the staffing guidelines. More than 60 percent of the schools (28) had one aide only, well below the recommended 3.0 to 3.5 aides. Furthermore, five schools (11.1 percent) only had a part-time aide.

Table III.9. Middle/Junior High School Size, Guidelines and Library Media Program Staff

School Size	Number/Percent of Schools (250)	Library Media Program Staffing Guidelines	Number of Staff	Library Media Specialists			Library Media Program Aides		
				Full-time	Part-time	Total	Full-time	Part-time	Total
Up to 299	32 12.8%	0.5 – 1.0 certified library media specialist + 1.0 – 1.5 aides	1	6 18.7%	22 68.7%	28 87.5%	13 40.6%	10 31.2%	21 65.6%
			2	0 0.0%	1 0.3%	1 3.1%	0 0.0%	6 18.7%	7 21.9%
			3 or more	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
300 to 799	173 69.2%	1.0 – 2.0 certified library media specialist + 2.0 – 3.0 aides	1	123 71.1%	45 26.0%	168 97.1%	87 50.3%	51 29.5%	118 68.2%
			2	0 0.0%	2 1.6%	2 1.1%	2 1.6%	17 9.8%	26 15.0%
			3 or more	1 0.6%	0 0.0%	1 0.6%	1 0.6%	3 1.7%	6 3.5%
800 to 1,399	45 18.0%	2.0 – 2.5 certified library media specialists + 3.0 – 3.5 aides	1	41 91.1%	4 8.9%	45 100.0%	23 51.1%	10 22.2%	28 62.2%
			2	0 0.0%	0 0.0%	0 0.0%	3 6.7%	3 6.7%	5 11.1%
			3 or more	0 0.0%	0 0.0%	0 0.0%	2 4.4%	2 4.4%	6 13.3%
1,400 to 2,100	0 0.0%	2.5 – 3.0 certified library media specialists + 4.0 – 4.5 aides	1	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
			2	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
			3 or more	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%

A large percentage of middle/junior high schools fell short of the DPI’s recommended library media program professional and support staffing levels: 95 middle/junior high schools (38.0 percent) did not have the requisite number of library media specialists and 202 (80.8 percent) did not have the recommended number of library aides.

Library media program staffing affects library media program use. The number of library media specialists and the number of library media specialist hours per 100 students were correlated with:

- Number of scheduled and unscheduled class visits to the library media program

- Number of scheduled and unscheduled information skills instruction contacts with classes or groups
- Number of books and other materials checked out per student

Library media centers with more library media specialist resources and library media specialist hours are able to accommodate visits by more classes and facilitate more activities. The middle/junior high school library media specialist staffing levels were highly correlated with resources such as:

- Library media program operational expenditures per student
- Size of print collection
- Number of audio titles
- Library media center technology, including computers and other technological equipment, per 100 students

Middle/Junior high school library media programs with more library media specialist resources also had larger collections, more technology resources, and were supported by larger operating budgets per student.

Table III.10. Middle/Junior High School Library Media Specialists Correlations

Correlation with:	Middle School Library Media Specialists Per 100 Students	Middle School Library Media Specialist Hours Per 100 Students
	<i>Pearson Correlation (r)</i>	<i>Pearson Correlation (r)</i>
	<i>Probability (p)</i>	<i>Probability (p)</i>
	<i>Number (n)</i>	<i>Number (n)</i>
Operational expenditures per student	.435 .000 250	.406 .000 250
Total number of hours library media center is open per week per 100 students	.759 .000 239	.424 .000 239
Library Media Center Use in Typical Week:		
Number of scheduled and unscheduled class visits to library media center per student	.330 .000 243	.250 .000 243
Number of scheduled and unscheduled information skills instruction contacts with classes or groups 100 students	.168 .009 242	.207 .001 242
Number of materials checked out during most recent week per 100 students	.183 .004 241	*

Library Media Program Collection:		
Books (print volumes including encyclopedias and reference) per student	.304 .000 245	.223 .000 245
Audio materials per student	.278 .000 239	.374 .000 239
Library Media Center Technology:		
Number of computers in or under library media program supervision per 100 students	.266 .000 245	.275 .000 245
Number of scanners in or under library media program supervision per 100 students	.404 .000 238	.293 .002 238
Number of printers in or under library media program supervision per 100 students	.283 .000 243	.178 .005 243
Number of data projectors in or under library media program supervision per 100 students	.186 .004 240	.169 .009 240
Number of digital cameras in or under library media program supervision per 100 students	.289 .000 239	.182 .005 239
Number of computers in school from which networked library media program resources can be accessed per 100 students	.207 .002 225	.300 .000 225
Library Media Program Management:		
Communication with other library media programs in the district	.232 .000 248	.240 .000 248
Promote reading program with public library	.198 .002 247	*
Belongs to national library association	.176 .006 246	.146 .022 246

* Correlation was not statistically significant.

The presence of aides in middle/junior high school library media programs is significantly correlated with:

- Longer hours of service
- More financial resources
- Greater number of print resources
- Greater number of technology resources

- Presence of library media program technology management and support
- Program integration through meetings with the principal and other school and district administrators
- Program visibility through participation in curriculum and school improvement plan committees

Table III.11. Middle/Junior High School Library Media Program Aides Correlations

Correlation with:	Middle School Library Media Aides Per 100 Students	Middle School Library Media Aides Hours Per 100 Students
	<i>Pearson Correlation (r) Significance (p) Number (n)</i>	<i>Pearson Correlation (r) Significance (p) Number (n)</i>
Percent time spent in a week managing library media program technology	.139 .028 249	.257 .000 249
Percent time spent in a week meeting with other library media program staff	.173 .006 249	.262 .000 249
Percent time spent in a week meeting with principal and other school/district administrators	.147 .020 249	.183 .004 249
Library media program is represented on school/district improvement plan committee(s)	.132 .038 245	.129 .043 245
Library media program is represented on school/district curriculum committee	.156 .014 247	.168 .008 247
Manage library media program technology	.139 .028 248	.257 .000 249
Hours library media center is open in a week per 100 students	.566 .000 239	.548 .000 239
Books per student	.298 .000 245	.268 .000 245
Total operating budget per student	.340 .000 249	.327 .000 249
Technology:		
Number of computers in or under library media program supervision per 100 students	.361 .000 245	.348 .000 245
Number of laptops in or under library	.331	.245

media program supervision per 100 students	.000 237	.000 237
Number of scanners in or under library media program supervision per 100 students	.258 .000 238	.237 .000 238
Number of printers in or under library media program supervision per 100 students	.265 .000 243	.289 .000 243
Number of data projectors in or under library media program supervision per 100 students	.271 .000 240	.254 .000 240
Number of video cameras in or under library media program supervision per 100 students	.204 .001 242	.186 .004 242
Number of PDAs in or under library media program supervision per 100 students	.241 .000 229	.250 .000 229

Having adequate library media program staff (library media specialists and aides) impacts most strongly library media center resources, technology, library media center use and program visibility as reflected by:

- Hours of operations
- Size of operating budget
- Number of technology resources
- Number of scheduled and unscheduled class visits
- Frequency of information skills instruction to classes
- Number of books and materials circulated
- Hours spent managing library media center technology and support
- Number of meetings with other library media program staff, administrators and classroom teachers
- Participation on curriculum and school improvement and plan committees

Table III.12. Middle/Junior High School Library Media Staff Correlations

Correlation with:	Middle School Library Media Program Staff Per 100 Students	Middle School Library Media Program Staff Hours Per 100 Students
	<i>Pearson Correlation (r) Significance (p) Number (n)</i>	<i>Pearson Correlation (r) Significance (p) Number (n)</i>
Staff Activities:		
Percent time spent managing library media program technology	* 249	.250 .000 249
Percent time spent weekly meeting with other library media program staff	.212 .001 249	.184 .004 249
Percent time spent weekly meeting with principal or other school and district administrators	.175 .006 249	.186 .003 249
Library media program is represented on school/district improvement plan committee(s)	.159 .013 245	.179 .005 245
Library media program is represented on school/district curriculum committee	.130 .041 247	.132 .039 247
Operating budget per student	.445 .000 249	.460 .000 249
Library Media Center Use in Typical Week:		
Total number of hours per week per 100 students library media center is open	.761 .000 239	.670 .000 239
Number of scheduled and unscheduled class visits per student	.341 .000 243	.383 .000 243
Number of scheduled and unscheduled information skills instruction contacts with classes or groups 100 students	.129 .045 242	.167 .009 242
Number of materials checked out during most recent week per 100 students	.179 .005 241	.163 .000 241
Library Media Program Collection:		
Print volumes per student	.358 .000 245	.325 .000 245
Audio materials per student	.224 .000 239	.252 .000 239

Technology:		
Number of computers in or under library media program supervision per 100 students	.389 .000 245	.423 .000 245
Number of laptops in or under library media program supervision per 100 students	.303 .000 237	.240 .000 237
Number of scanners in or under library media program supervision per 100 students	.374 .000 238	.341 .000 238
Number of printers in or under library media program supervision per 100 students	.325 .000 243	.326 .000 243
Number of data projectors in or under library media program supervision per 100 students	.286 .000 240	.292 .000 240
Number of digital cameras in or under library media program supervision per 100 students	.255 .000 239	.213 .001 239
Number of computers in school from which networked library media program resources can be accessed per 100 students	.231 .000 225	.330 .000 225
Online databases accessible from all school computers	.295 .000 235	.180 .006 235
Online databases accessible from teachers' home computers	.194 .003 234	.169 .009 234
Online databases accessible from students' home computers	.181 .006 232	.144 .028 232

* Correlation was not statistically significant.

1.3 High School Library Media Program Staff

On average, high school library media programs had 2.42 staff: 1.06 certified library media specialists and 1.36 aides. More than three-quarters of the high school library media programs had a full-time library media specialist and 52.8 percent had a full-time aide. More than 93 percent of high school library media programs had a total of two or more staff members. High school library media program staff worked 73.57 hours in a typical week. The number of work hours of the library media specialist and the aide were nearly equal: 35.50 and 37.71, respectively.

Table III.13 High School Library Media Program Staff

Staff	Means/Percent
Number of library media specialists	1.06
Number of library media program aides	1.36
Number of library media program staff	2.42
Percent with a full-time library media specialist	75.7%
Percent with a full-time aide	52.8%
Number of library media programs with one staff member	34
Percent of library media programs with one staff member	11.8%
Number of library media programs with two staff members	157
Percent of library media programs with two staff members	54.5%
Number of library media programs with three or more staff	97
Percent of library media programs with three or more staff	38.8%
Library media specialist's person hours per week	35.50
Library media program aide hours per week	37.71
Library media program total staff person hours per week	73.57

Adult volunteers were less common in high school library media programs than in elementary and middle/junior high schools. Only 12.5 percent of the high school library media programs reported using adult volunteers. On average, these library media programs had 1.33 adult volunteers who worked about six hours a week. Volunteers in high school library media programs were typically students. More than 44 percent of the high school library media programs reported having student volunteers. On average, library media programs had 4.59 students working for about 16 hours a week.

Table III.14. High School Library Media Program Volunteers

Library Media Program Volunteers	Means/Percent
Number of adult volunteers (N=36)	1.33
Range of adult volunteers	1 - 4
Number of student volunteers (N=127)	4.59
Range of student volunteers	1 - 50
Number of library media program volunteers (N=131)	4.45
Number of hours adult volunteers work per week (N=36)	5.93
Number of hours student volunteers work per week (N=123)	15.73
Total number of volunteer hours per week (N=141)	15.24
Percent of library media programs with adult volunteers (N=36)	12.5%
Percent of library media programs with student volunteers (N=127)	44.1%

High school enrollment ranged from 41 to 2,352 students. The average number of students was 741 and the median was 556. Of the 288 high schools responding to the questionnaire, two schools (0.7 percent) did not have any library media specialists and 34 (11.8 percent) did not have aides.

Twenty-two percent, or 64 of the high schools had up to 299 students. Department of Public Instruction staffing guidelines recommend that library media programs in school

of this size have 0.5 to 1.0 professional staff and 1.0 to 1.5 support staff. Two of these 64 schools (3.1 percent) did not have any library media specialists and eight schools (12.5 percent) did not have any aides. Forty-five percent of these schools had a full-time library media specialist. Of these 39 schools (60.9 percent) with only one aide, 21 schools (53.8 percent) only had a part-time aide. More than 28 percent of the schools had a full-time aide. Nearly eight percent had two or more full-time aides and 14.1 percent also had two or more part-time aides. More than 45 percent of the schools did not meet the recommended staffing level for aides.

One hundred seventeen (41 percent) high schools had between 300 and 799 students. Staffing guidelines recommend that library media programs in schools of this size have 1.0 to 2.0 professional staff and 2.0 to 3.0 support staff. All high schools in this size category had media library specialists, but only 83 of the schools (70.9 percent) had a full-time library media specialist. Seventy-seven schools (65.8 percent) of the 117 had only one aide while 21 schools (17.9 percent) did not have any aides, below the recommended level of 2.0 to 3.0 aides. Twenty-eight of the schools (23.9 percent) had only one part-time aide. Nearly 84 percent of the high schools with 300 to 799 students did not meet the recommended staffing levels for aides.

More than 22 percent or 65 high schools had between 800 and 1,399 students. DPI staffing guidelines recommend that library media programs in schools of this size have 2.0 to 2.5 professional staff and 3.0 to 3.5 support staff. All high schools in this size category had library media specialists. While 63 of the 65 schools had full-time media library specialists, only two of the schools (3.1 percent) met the recommended staffing level of 2.0 to 2.5. Seventy-two percent of the schools had one or more full-time aides, but three of the 65 high schools in this size category (4.6 percent) did not have any aides. However, only seven of the schools (10.8 percent) had 3.0 or more aides, as recommended in the guidelines.

Nearly 15 percent of the high schools had between 1,400 and 2,100 students. Staffing guidelines recommend that library media programs in schools of this size have 2.5 to 3.0 professional staff and 4.0 to 4.5 support staff. All 42 high schools with 1,400 to 2,100 students had certified library media specialists. However, none of the schools met the recommended library media specialist staffing level: 30 of the schools (71.4 percent) had only one library media specialist and 12 (28.6 percent) had two library media specialists. None of the schools met the recommended staffing levels for aides. Two of the high schools (4.8 percent) did not have any aides. Thirteen of the schools (30.9 percent) had only one aide, 12 schools (28.6 percent) had two aides, and 15 (35.7 percent) had three aides; all below the recommended level of 4.0 to 4.5 library aides.

Table III.15 – High School Size, Guidelines and Library Media Program Staff

School Size	Number/ Percent of Schools (288)	Library Media Program Staffing Guidelines	Number of Staff	Library Media Specialists			Library Media Program Aides		
				Full- time	Part- time	Total	Full- time	Part- time	Total
Up to 299	64 22.2%	0.5 – 1.0 certified library media specialist + 1.0 – 1.5 aides	1	29 45.3%	32 50.0%	60 93.7%	18 28.1%	29 45.3%	39 60.9%
			2	1 1.6%	1 1.6%	1 1.6%	4 6.2%	8 12.5%	13 20.3%
			3 or more	0 0.0%	0 0.0%	1 1.6%	1 1.6%	1 1.6%	4 6.2%
300 to 799	117 40.6%	1.0 – 2.0 certified library media specialist + 2.0 – 3.0 aides	1	83 70.9%	33 28.2%	116 99.1%	49 41.9%	35 29.9%	77 65.8%
			2	0 0.0%	1 0.8%	1 0.8%	2 1.7%	13 11.1%	15 12.8%
			3 or more	0 0.0%	0 0.0%	0 0.0%	1 0.8%	3 2.6%	4 3.4%
800 to 1,399	65 22.6%	2.0 – 2.5 certified library media specialists + 3.0 – 3.5 aides	1	61 93.8%	4 6.2%	61 93.8%	37 56.9%	16 24.6%	31 47.7%
			2	2 3.1%	0 0.0%	4 6.1%	9 13.8%	1 1.5%	24 36.9%
			3 or more	0 0.0%	0 0.0%	0 0.0%	1 1.5%	4 6.2%	7 10.8%
1,400 to 2,100	42 14.6%	2.5 – 3.0 certified library media specialists + 4.0 – 4.5 aides	1	36 85.7%	6 14.3%	30 71.4%	17 40.5%	12 33.3%	13 30.9%
			2	6 14.3%	0 0.0%	12 28.6%	8 19.0%	8 19.0%	12 28.6%
			3 or more	0 0.0%	0 0.0%	0 0.0%	5 11.9%	3 7.1%	15 35.7%

A large percentage of high schools fell short of the DPI's recommended library media program professional and support staffing levels: 141 high schools (48.9 percent) did not have the requisite number of library media specialists and 255 (88.5 percent) did not have the recommended number of library aides.

The presence of professional library media specialists and the number of hours they work per week are strongly associated with the size of the library media program's collection, technology resources, and extent of library media center use. High school library media programs with more library media specialist resources per 100 students were likely to have a larger collection and more technology. Such library media programs were also likely to have a higher level of program use as measured by the number of individual and group visits to the library media center, the number of materials used and checked out, and the number of loans to and from other library media centers.

Table III.16. High School Library Media Specialists Correlations

Correlation with:	High School Library Media Specialists Per 100 Students	High School Library Media Specialist Hours Per 100 Students
	<i>Pearson Correlation (r)</i>	<i>Pearson Correlation (r)</i>
	<i>Significance (p)</i>	<i>Significance (p)</i>
	<i>Number (n)</i>	<i>Number (n)</i>
Operational expenditures per student	.997 .000 287	.996 .000 287
Capital budget per student	.971 .000 287	.967 .000 287
Library Media Center Use in a Typical Week:		
Number of hours library media center is open in typical week per 100 students	.999 .000 281	.996 .000 281
Number of scheduled and unscheduled visits by individuals per 100 students	.994 .000 277	.993 .000 277
Number of scheduled and unscheduled visits by classes per 100 students	.994 .025 281	.990 .000 281
Number of scheduled and unscheduled information skills instruction contacts with individuals per 100 students	.946 .000 274	.944 .000 274
Number of scheduled and unscheduled information skills instruction contacts with classes or groups 100 students	.993 .000 274	.990 .000 274
Number of books and other materials checked out per 100 students	.994 .000 277	.991 .000 277
Number of books and other materials used in the library media center per 100 students	.994 .000 277	.991 .000 277
Number of books and other materials loaned to other library media centers per 100 students	.989 .000 273	.986 .000 273
Number of books and other materials requested from other library media centers per 100 students	.993 .000 272	.990 .000 272
Library Media Program Collection:		
Number of books per student	.997 .000 285	.995 .000 285
Current print subscriptions to periodicals, newspapers, magazines, journals per 100 students	.988 .000 286	.986 .000 286

Electronic subscriptions per 100 students	.993 .000 282	.989 .000 282
Audio materials per student	.939 .000 278	.939 .000 278
Video/DVD materials per student	.993 .000 281	.989 .000 281
Technology in or Under Library Media Program Supervision:		
Number of computers per 100 students	.994 .000 285	.991 .000 285
Number of laptops per 100 students	.461 .000 274	.462 .000 274
Number of scanners per 100 students	.995 .000 275	.993 .000 275
Number of printers per 100 students	.993 .000 283	.989 .000 283
Number of data projectors per 100 students	.982 .000 281	.982 .000 281
Number of DVD recorders/players per 100 students	.946 .000 282	.949 .000 282
Number of VCR recorders/players per 100 students	.800 .000 281	.806 .000 281
Number of digital cameras per 100 students	.994 .000 277	.991 .000 277
Number of video cameras per 100 students	.995 .000 279	.993 .000 279
Number of computers in school from which networked library media program resources can be accessed per 100 students	.994 .000 258	.998 .000 258

Full-time library media program aides were typically available only in large high schools. The number of library media program aides per 100 students, similar to library media specialist staffing levels, was strongly associated with the size of the library media program collection and technology resources. High school library media programs with more aides per 100 students were more likely to have larger collections and larger

technology resources. Such library media programs also tended to have larger capital outlay budgets per student.

Table III.17. High School Library Aides Correlations

Correlation with:	High School Library Media Program Aides Per 100 Students	High School Library Media Program Aides Hours Per 100 Students
	<i>Pearson Correlation (r) Significance (p) Number (n)</i>	<i>Pearson Correlation (r) Significance (p) Number (n)</i>
Library Media Center Use:		
Number of hours in typical weeks library media center is open per 100 students	.998 .000 281	.998 .000 281
Library media Program Collection:		
Books per student	.998 .000 285	.995 .000 285
Current print subscriptions to periodicals, newspapers, magazines, journals per 100 students	.990 .000 286	.990 .000 286
Electronic subscriptions per 100 students	.998 .000 282	.999 .000 282
Audio materials per student	.939 .000 278	.939 .000 278
Video/DVD materials per student	.996 .000 281	.996 .000 281
Technology in or Under Library Media Program Supervision:		
Number of computers per 100 students	.998 .000 285	.999 .000 285
Number of laptops per 100 students	.463 .000 274	.460 .000 274
Number of scanners per 100 students	.996 .000 275	.997 .000 275
Number of printers per 100 students	.995 .000 283	.995 .000 283
Number of data projectors per 100 students	.983 .000 281	.984 .000 281
Number of DVD recorders/players per	.942	.941

100 students	.000 282	.000 282
Number of VCR recorders/players per 100 students	.796 .000 281	.793 .000 281
Number of digital cameras per 100 students	.998 .000 277	.999 .000 277
Number of video cameras per 100 students	.996 .000 279	.998 .000 279
Number of computers in school from which networked library media program resources can be accessed per 100 students	.998 .000 258	.999 .000 258
Library Media Program Financial Resources:		
Operational expenditures per student	.997 .000 287	.997 .000 287
Capital outlay per student	.973 .000 287	.973 .000 287

2. Staff Qualifications

Library media programs were asked to report the qualifications of their staff: both certified library media specialists and aides. As shown in Table III.18 below:

- More than 75 percent of library media programs at all grade levels had staff with a Master's degree or higher and with teacher and library science certification.
- 18.4 percent of elementary school library media programs, 16.8 percent of middle/junior high school library media programs, and 19.1 percent of high school library media programs had staff with a Bachelor's degree and teacher and school library science certification.
- 58.0 percent of the middle/junior high school programs, 66.5 percent of elementary school programs and 68.0 percent of high school library media programs had support staff with less than a Bachelor's degree.

Table III.18. Library Media Program Staff Qualifications

Qualifications	Elementary Schools	Middle/Junior High Schools	High Schools
	(505) %	(250) %	(288) %
Master's degree or higher with teacher and library science certification	76.4%	78.4%	78.5%
Master's degree with teacher certification but not school library certification	2.0%	3.2%	3.1%
Master's degree without teacher certification	3.0%	2.4%	2.1%
Bachelor's degree with teacher and school library science certification	18.4%	16.8%	19.1%
Bachelor's degree with teacher certification	7.1%	7.6%	10.1%
Bachelor's degree without teacher certification	10.9%	19.6%	10.8%
Less than Bachelor's degree (associate degree, high school diploma)	66.5%	58.0%	68.0%

3. The Impact of Full-time Library Media Specialists

The presence of full-time certified library media specialists in Wisconsin public school library media programs is decreasing at all grade levels. According to Department of Public Instruction statistics, in 2003-04, 163 districts had only one certified library media specialist serving between two to seven schools in the district. According to the survey, fewer than half of all elementary school library media programs have a full-time library media specialist. About two-thirds of the middle school library media programs and three-quarters of the high school library media programs have full-time certified library media specialists. Across all grade levels, about 40 percent of Wisconsin schools do not have full-time library media specialists.

Table III.19. Number and Percentage of Schools With/Without Full-Time Library Media Specialist by Educational Level

Education Level	Full-Time Library Media Specialist		Less than Full-Time Library Media Specialist	
	Number	Percent	Number	Percent
Elementary Schools (505)	240	47.5%	265	52.5%
Middle Schools (250)	171	68.4%	79	31.6%
High Schools (288)	218	75.7%	70	24.3%
Total (1,043)	629	60.3%	414	39.7%

Having a full-time library media specialist supports library media centers to be open longer, especially before and after school, as shown in Table III.20. Elementary school library media centers with a full-time library media specialist were open 4.64 hours more a week than centers with less than a full-time library media specialist. Middle/Junior high school library media centers with a full-time library media specialist were open, on average 4.68 hours longer a week, and high school library media centers with a full-time library media specialist were open, on average, 3.51 hours longer.

Table III.20. Library Media Program Service Hours Per Week

Mean Service Hours Per Week	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference*	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Mean hours library is open per week during school hours	35.66	32.56	9.5%	36.51	35.25	4%	37.94	36.36	4%
Mean hours library is open per week before school hours	2.32	1.79	21%	2.03	1.33	52%	2.37	1.96	21%
Mean hours library is open per week after school hours	2.51	1.50	67%	2.72	2.08	44%	4.04	2.52	60%
Mean hours library is open per typical week in the summer	3.09	2.14	44%	2.08	1.03	102%	2.21	1.87	18%

* Percent difference is calculated as “full-time LMS” mean / “less than full-time LMS” mean.

Library media programs with full-time library media specialists spent significantly more hours on teaching and learning activities. Teaching and learning activities are those activities that most strongly have an impact on student academic performance. As shown in the table below, elementary library media programs with full-time library media specialists spent 81 percent more hours on learning and teaching activities than programs without a full-time library media specialist. Middle school library media programs with full-time library media specialists spent 95 percent more hours on these activities than those programs without a full-time library media specialist. **At the high school level, library media programs with full-time library media specialists spent 142 percent more time on teaching and learning activities than programs without full-time library media specialists.**

Library media programs with a full-time library media specialist at all levels also spent more time on activities associated with information access and delivery than programs without a full-time library media specialist. For example, they spent between 49 percent (elementary) and 74 percent (high school) more time identifying materials for instructional units developed by teachers than programs without this staffing pattern.

Because programs were better staffed, they could offer more hours of service. Overall, programs with a full-time library media specialist offered 36 to 60 percent more hours of service.

Table III.21. Comparison of Paid Staff Mean Hours Spent on Library Activities in a Typical Week in Schools With A Full-Time and Less Than A Full-Time Library Media Specialist

Mean Hours Per Typical Week Performing Following Activities	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Learning and Teaching:	16.11	8.90	81%	21.19	10.84	95%	20.22	8.36	142%
Planning instructional units with teachers	1.62	1.04	56%	2.18	1.31	67%	2.54	0.98	160%
Teaching cooperatively with teachers	2.74	1.52	81%	5.49	1.76	212%	4.92	1.32	272%
Assisting collaborative student projects	0.68	0.27	151%	1.80	0.59	207%	0.76	0.39	95%
Providing staff development to teachers or other school staff	1.86	0.83	125%	2.08	1.26	66%	2.94	1.04	182%
Teaching information skills and technology literacy to student individually or in groups	8.99	5.15	75%	9.48	5.77	64%	8.68	4.38	98%
Providing technology literacy instruction and training to parents and community members	0.23	0.11	115%	0.15	0.16	(7%)	0.39	0.24	59%
Information Access and Delivery:	24.06	20.31	18%	26.43	22.47	18%	30.35	21.22	43%
Performing basic library activities (checking in and out, reshelving, processing, retrieving)	15.02	14.75	2%	19.33	17.00	14%	23.29	16.58	41%

Identifying materials for instructional units developed by teachers	2.99	2.00	49%	3.82	2.63	46%	4.73	2.72	74%
Offering reading incentive activities for students	6.05	3.56	70%	3.28	2.85	15%	2.33	1.91	22%
Program Administration:	19.54	13.91	40%	23.10	15.57	46%	30.48	20.94	46%
Collection management (selection, inventory, weeding)	2.82	2.57	10%	3.84	2.69	43%	6.85	4.91	39%
Managing library technology	3.18	2.15	48%	5.42	2.52	115%	7.41	4.70	58%
Administering electronic reading programs (Accelerated Reader, Electronic Bookshelf, etc.)	0.77	0.89	(16%)	0.93	0.79	18%	0.67	0.97	(45%)
Meeting with other library staff from the building and/or the district	0.67	0.80	(19%)	0.60	0.69	(15%)	0.93	1.03	(11%)
Serving on building and/or district planning and management committees	0.60	0.36	68%	0.52	0.40	31%	0.87	0.53	54%
Meeting with principal or other building or district administrators	0.40	0.30	34%	0.43	0.30	46%	0.60	0.40	51%
Attending faculty or staff meetings and in-services	0.72	0.68	5%	0.77	0.69	11%	0.89	0.79	13%
Performing duties unrelated to school library services	10.38	6.17	68%	10.58	7.50	41%	12.25	7.61	61%
Total Number of Hours	59.71	43.12	36%	70.71	48.88	45%	81.06	50.51	60%

* Percent difference is calculated as "full-time LMS" mean / "less than full-time LMS" mean.

Library media programs with a full-time library media specialist exhibited statistically significant correlations with activities such as planning units with teachers, teaching collaboratively, assessing student collaborative projects and providing staff development to teachers and other staff; activities affecting instruction and student performance.

Table III.22. Bivariate Correlations Between Library Media Specialist Staffing and Activities

Activities	Pearson Correlation (r) Probability (p) Number (n)
Elementary Schools:	
Assessing collaborative student projects	.161 .000 505
Providing staff development to teachers or other staff	.194 .000 505
Teaching students information skills and technology literacy	.146 .001 505
Middle/Junior High Schools:	
Teaching collaboratively with teachers	.212 .001 250
Assessing collaborative student projects	.174 .053 124
High Schools:	
Planning instructional units with teachers	.154 .009 288
Teaching collaboratively with teachers	.203 .001 288
Providing staff development to teachers or other staff	.230 .000 288

Library media centers with full-time library media specialists showed greater levels of activity compared with centers that did not have a full-time library media specialist. These library media centers had a larger number of scheduled and unscheduled visits by classes as well as individual students. Centers with full-time library media specialists also provided information skills instruction to more individuals and classes. Students associated with these programs used more materials in the library media center and also checked out more materials. Elementary and high school library media centers also loaned more books and other materials to other library media centers. Elementary library media centers also requested more loans from other libraries. The following table compares library media program activity in a typical week in centers with a full-time library media specialist with centers that have less than a full-time library media specialist.

Table III.23. Comparison of Library Media Center Use in a Typical Week in Schools With A Full-Time and Less Than A Full-Time Library Media Specialist

Use Per Week - Means	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Number of scheduled and unscheduled visits to library by individuals	173.00	131.77	31%	459.62	242.56	90%	720.78	354.76	103%
Number of scheduled and unscheduled visits to library by classes or other groups	25.95	19.94	30%	26.81	21.13	27%	24.86	22.94	8%
Number of scheduled and unscheduled information skills instruction contacts with individuals	65.60	36.54	80%	118.78	64.61	84%	94.78	61.83	53%
Number of scheduled and unscheduled information skills instruction contacts with classes or other groups	14.94	9.24	52%	12.88	8.45	52%	10.01	6.91	45%
Total number of books and other materials checked out during the most recent full week	880.48	556.76	58%	473.36	429.65	10%	237.44	173.89	37%
Number of materials used in the library	470.77	234.16	101%	325.91	315.13	3%	227.27	188.90	20%
Number of loans by this library to other librarians in or outside district	8.87	5.83	52%	4.86	4.45	9%	3.85	4.15	(8%)
Number of loans requested by this library from other libraries in or outside the district	6.72	5.31	26%	5.29	3.48	52%	4.53	5.46	(20%)

* Percent difference is calculated as "full-time LMS" mean / "less than full-time LMS" mean.

Middle school and high school library media centers with a full-time library media specialist had a larger percentage of class visits that were flexibly scheduled than centers without a full-time library media specialist. At the elementary school level, the percentage of flexibly scheduled class visits was lower than in the middle and high school levels and did not differ between centers with and without a full-time library media specialist.

Table III.24. Mean Percentage of Class Visits to the Library Media Center in a Typical Week in Schools With A Full-Time and Less Than A Full-Time Library Media Specialist

Library Class Visit Scheduling per Week	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Flexibly Scheduled	13.93	14.00	(99.5%)	50.21	37.51	34%	61.05	55.58	10%
Regularly (Fixed) Scheduled	55.32	58.20	(95%)	23.66	36.15	(65%)	16.31	15.10	8%

** Percent difference is calculated as “full-time LMS” mean / “less than full-time LMS” mean. In case where the “full-time LMS” mean was smaller than the “less than full-time LMS,” the percentage difference is expressed in () indicating the proportion of the smaller mean over the larger mean.*

Library media centers with a full-time library media specialist had more technology resources than centers without a full-time library media specialist, as shown in Table III.25. For example, the programs with full-time library media specialists had 40 to 80 percent more computers, 31 to 76 more laptops, 44 to 51 percent more scanners, and 36 to 46 more printers. Programs with full-times library media specialists had more advanced technology equipment such as data projectors (33 to 81 percent more) and digital cameras (23 to 45 percent more). They also had 23 to 88 percent more school computers with access to networked library resources.

Table III.25. Comparison of Library Media Center Technology in Schools With a Full-Time and Less Than a Full-Time Library Media Specialist

Mean - Equipment Located in or Under Library Media Program Supervision	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Computers	31.28	20.83	50%	36.99	26.49	40%	38.62	21.50	80%
Laptops	16.70	10.52	59%	16.09	12.25	31%	10.22	5.79	76%
Scanners	1.15	0.79	45%	1.51	1.00	51%	1.35	0.94	44%
Printers	4.45	3.19	39%	4.23	2.89	46%	3.42	2.51	36%
Computers and laptops with accommodations for students with disabilities	1.39	2.28	64%	6.84	4.78	43%	4.67	3.64	28%
Data projectors (LCDs)	2.12	1.17	81%	2.82	2.13	33%	3.28	1.86	76%
DVD recorders/players	2.79	1.42	97%	4.27	3.28	30%	5.02	3.47	45%
VCR recorders/players	9.51	6.09	56%	12.12	8.27	47%	14.36	9.56	50%
Televisions	9.87	6.20	59%	12.40	7.46	66%	15.09	9.41	60%
Digital cameras	3.50	2.41	45%	3.06	2.49	23%	3.22	2.41	34%
Video cameras	1.95	1.22	60%	2.50	2.09	20%	3.31	2.20	50%
PDAs including Palm Pilots, Pocket PC, iPods	0.40	0.24	67%	0.59	0.16	259%	0.55	0.20	176%
School computers with access to networked library media center resources	60.24	48.87	23%	132.84	75.19	77%	217.66	115.63	88%

* Percent difference is calculated as "full-time LMS" mean / "less than full-time LMS" mean.

Library media centers with full-time library media specialists had a larger collection of both print and non-print materials in all categories listed in Table III.26 below. For example, programs with full-time library media specialists had 27 to 54 percent more books, encyclopedias and reference books; 21 to 43 percent more print subscriptions, and 46 to 153 percent more electronic subscriptions. These programs also had 18 to 128 percent more audio materials and 21 to 77 percent more video and DVD materials.

Table III.26. Comparison of Library Media Center Collection in Schools With a Full-Time and Less Than a Full-Time Library Media Specialist

Collection - Means	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Books, including encyclopedias and reference	13,757	10,817	27%	13,765	10,903	26%	15,242	9,884	54%
Current print subscriptions to periodicals, newspapers, magazines, journals	22.97	18.58	24%	37.87	31.27	21%	63.76	44.69	43%
Electronic subscriptions received via the Internet	2.67	1.83	46%	3.70	2.49	48%	5.41	2.14	153%
Encyclopedias and reference titles on CD ROM	5.62	3.04	85%	5.09	4.14	23%	3.23	3.47	(7%)
Audio materials (cassettes, CDs, LPs)	120.75	102.02	18%	99.12	65.94	50%	122.92	53.83	128%
Video/DVD materials (cassettes, disks and laser discs)	451.33	372.39	21%	539.45	330.00	63%	815.78	461.07	77%
Computer software packages for use in school library by students and staff	62.79	44.29	42%	27.93	17.33	61%	15.99	6.33	153%

* Percent difference is calculated as "full-time LMS" mean / "less than full-time LMS" mean.

Library media programs with full-time library media specialists had larger budgets than programs without a full-time library media specialist. The budgets of library media programs at elementary and middle schools with full-time library media specialists were 41 to 46 percent larger than the budgets of programs without full-time media specialists. Budgets of high school library media programs with full-time library media specialists were 82 percent larger, on average, than those of programs without a full-time library media specialist.

Table III.27. Comparison of Library Media Program Budgets in Schools With a Full-Time and Less Than a Full-Time Library Media Specialist

Budget Categories	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Total Operating Expenditures	\$11813	\$8534	38%	\$16173	\$11113	45%	\$24696	\$12152	103%
Books (print) (432)	\$7,642	\$5,405	41%	\$9372	\$6776	38%	\$11019	\$5888	87%
Newspapers (433)	\$77	\$104		\$264	\$176	50%	\$523	\$409	28%
Periodicals/Magazines (434)	\$698	\$518	35%	\$1134	\$928	22%	\$2073	\$1256	65%
Reference materials (439)	\$834	\$528	58%	\$1313	\$744	76%	\$2654	\$1146	132%
Electronic format materials (instructional software including online database subscriptions) (435)	\$613	\$478	28%	\$1324	\$753	76%	\$4145	\$1104	275%
Non-print materials: audiovisual and e-books (431), microform (438)	\$929	\$621	49%	\$1134	\$743	52%	\$1829	\$882	107%
Other operating expenditures including general supplies (411)	\$904	\$755	20%	\$1508	\$863	75%	\$2076	\$1119	86%
Dues and fees such as WISCAT fee, AR, professional associations (940)	\$116	\$124	(7%)	\$124	\$129	(4%)	\$376	\$348	8%
Total Capital Outlay	\$2682	\$1369	96%	\$4074	\$3268	25%	\$6196	\$4820	29%
Equipment (computers, peripherals, VCRs) including purchase, additions, rental and replacement	\$1938	\$1252	55%	\$3397	\$2221	53%	\$4621	\$3759	23%
Other capital purchases: furniture, shelving	\$593	\$45	1217%	\$466	\$604	(30%)	\$1027	\$325	216%
Other miscellaneous	\$189	\$72	165%	\$210	\$442	(110%)	\$548	\$736	(34%)
Total Budget	\$14495	\$9902	46%	\$20246	\$14381	41%	\$30891	\$16972	82%

* Percent difference is calculated as "full-time LMS" mean / "less than full-time LMS" mean.

Students in schools with library media programs staffed with a full-time library media specialist outperformed students in schools without full-time library media specialists in reading and language arts at the Advanced level of the Wisconsin Knowledge and Concepts Examination (WKCE) in 2003-04. At the elementary level, students in schools with programs staffed by a full-time library media specialist also outperformed students from schools without full-time library media specialists at the Proficient level. The differences in the percentages of students performing at the Advanced level between schools with full-time library media specialists and schools without full-time library media specialists were greatest at the high school level.

Table III.28. Comparison of Percentage of Students Scoring Proficient and Advanced on WKCE in Schools With a Full-Time and Less Than a Full-Time Library Media Specialist 2003-04

WKCE Content Areas	Elementary Schools (505)			Middle/Junior High Schools (250)			High Schools (288)		
	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference	Full-Time LMS	Less Than Full-Time LMS	Percent Difference
Reading									
Percent Proficient	34.25	34.33	(99.8%)	44.29	43.86	1%	17.89	18.20	(98%)
Percent Advanced	44.30	40.80	9%	32.74	31.43	4%	46.44	42.49	9%
Language Arts									
Percent Proficient	39.15	38.80	1%	38.37	38.70	(99%)	46.51	45.77	2%
Percent Advanced	37.15	33.74	10%	28.49	27.01	5%	15.36	11.80	30%

* Percent difference is calculated as “full-time LMS” mean / “less than full-time LMS” mean. *In case where the “full-time LMS” mean was smaller than the “less than full-time LMS,” the percentage difference is expressed in () indicating the proportion of the smaller mean over the larger mean.*

4. Library Media Programs Without Library Media Specialists

Seventeen schools responding to the survey had no certified library media specialists. These included ten elementary schools, five middle/junior high schools, and two high schools.

Library media programs without library media specialists, at all grade levels, allocated significantly fewer hours to activities overall. They also allocated significantly fewer hours to teaching and learning activities, as shown in Table III.29 below.

Table III.29. Staff Activities in Programs With and Without Library Media Specialists

Mean Hours Per Typical Week Performing Following Activities	Elementary Schools		Middle/Junior High Schools		High Schools	
	No LMS (N=10)	LMS (N=495)	No LMS (N=5)	LMS (N=245)	No LMS (N=2)	LMS (N=286)
Learning and Teaching:	4.83	12.48	15.05	17.97	4.00	17.43
Planning instructional units with teachers	0.56	1.33	2.17	1.90	0.00	2.18
Teaching cooperatively with teachers	0.80	2.13	2.72	4.35	0.00	4.07
Assisting collaborative student projects	0.40	0.46	0.45	1.44	0.00	0.67
Providing staff development to teachers or other school staff	0.40	1.34	0.92	1.84	0.50	2.49
Teaching information skills and technology literacy to student individually or in groups	2.67	7.06	7.60	8.32	3.50	7.66
Providing technology literacy instruction and training to parents and community members	0.00	0.17	1.20	0.13	0.00	0.35
Information Access and Delivery:	19.05	22.15	23.81	25.21	25.50	28.15
Performing basic library activities (checking in and out, reshelving, processing, retrieving)	13.33	14.91	20.32	18.56	17.50	21.69
Identifying materials for instructional units developed by teachers	3.24	2.46	3.48	1.91	4.00	4.25
Offering reading incentive activities for students	2.49	4.79	1.68	3.17	4.00	2.22
Program Administration:	17.12	16.57	7.19	20.99	10.50	28.28
Collection management (selection, inventory, weeding)	2.45	2.69	0.72	3.53	3.36	6.40
Managing library technology	3.80	2.62	1.03	4.58	2.57	6.78
Administering electronic reading programs (Accelerated Reader, Electronic Bookshelf, etc.)	1.98	0.81	0.20	0.90	0.00	0.75
Meeting with other library staff from the building and/or the district	0.40	0.74	0.24	0.63	0.04	0.96
Serving on building and/or district planning and management committees	0.20	0.48	0.44	0.49	0.00	0.80
Meeting with principal or other building or district administrators	0.20	0.35	0.22	0.39	0.02	0.56
Attending faculty or staff meetings and in-services	0.40	0.71	0.24	0.76	0.52	0.86
Performing duties unrelated to school library services	7.70	8.18	4.09	9.72	4.00	11.17
Total Number of Hours	41.00	51.21	46.05	64.18	40.00	73.87

Library media programs without certified library media specialists were less active than programs with library media specialists. They provided less information skills instruction, students checked out significantly fewer items, and fewer items were used in the library media center.

Table III.30. Library Media Center Use in Programs With and Without Library Media Specialists

Use Per Week	Elementary Schools		Middle/Junior High Schools		High Schools	
	No LMS (N=10)	LMS (N=495)	No LMS (N=5)	LMS (N=245)	No LMS (N=2)	LMS (N=286)
Number of scheduled and unscheduled visits to library by individuals	243.30	149.51	136.60	396.36	500.00	632.74
Number of scheduled and unscheduled visits to library by classes or other groups	15.00	22.95	21.60	25.09	42.50	24.26
Number of scheduled and unscheduled information skills instruction contacts with individuals	19.70	50.97	24.80	103.23	27.50	87.19
Number of scheduled and unscheduled information skills instruction contacts with classes or other groups	8.20	12.03	5.40	11.60	28.50	9.12
Total number of books and other materials checked out during the most recent full week	379.50	717.29	153.20	465.80	55.00	223.16
Number of materials used in the library	214.50	349.27	186.00	325.29	40.00	219.19
Number of loans by this library to other librarians in or outside district	6.00	7.30	0.40	4.82	1.50	3.94
Number of loans requested by this library from other libraries in or outside the district	4.90	6.00	4.00	4.73	16.00	4.68

Library media program collections in schools without a certified library media specialist were significantly smaller than in schools with library media specialists.

Table III.31. Library Media Program Collection in Programs With and Without Library Media Specialists

Library Media Program Collection (Means)	Elementary Schools		Middle/Junior High Schools		High Schools	
	No LMS (N=10)	LMS (N=495)	No LMS (N=5)	LMS (N=245)	No LMS (N=2)	LMS (N=286)
Books, including encyclopedias and reference	7,867	12,302	5,156	13,018	8,515	13,978
Current print subscriptions to periodicals, newspapers, magazines, journals	13.50	20.81	10.60	36.29	34.50	59.29
Electronic subscriptions received via the Internet	2.20	2.23	1.20	3.36	0.00	4.56
Encyclopedias and reference titles on CD ROM	2.70	4.29	1.00	4.87	3.50	3.29
Audio materials (cassettes, CDs, LPs)	40.50	112.34	16.60	90.11	10.00	106.80
Video/DVD materials (cassettes, disks and laser discs)	254.70	413.04	96.80	480.95	152.00	733.61
Computer software packages for use in school library by students and staff	6.60	54.02	4.60	24.99	0.50	13.73

Library media programs without library media specialists had less technology both in and under supervision of the library media program or in the school with access to networked library media program resources.

Table III.32. Technology Resources in Programs With and Without Library Media Specialists

Library Media Program Technology (Means)	Elementary Schools		Middle/Junior High Schools		High Schools	
	No LMS (N=10)	LMS (N=495)	No LMS (N=5)	LMS (N=245)	No LMS (N=2)	LMS (N=286)
Computers in or under supervision of library media program in or under supervision of library media program	22.20	25.87	19.00	33.98	8.50	34.64
Laptops	2.00	13.69	16.40	14.85	2.00	9.20
Scanners	0.70	0.96	0.60	1.36	1.00	1.25
Printers	3.70	3.79	2.40	3.83	1.50	3.21
Data projectors (LCDs)	1.20	1.63	1.00	2.63	0.50	2.95
DVD recorders/players	1.00	2.09	8.80	3.86	3.50	4.65
VCR recorders/players	7.00	7.73	9.20	10.94	10.00	13.21
Digital cameras	1.20	2.97	0.60	2.93	1.00	3.03
Video cameras	1.00	1.58	0.60	2.40	2.50	3.04
School computers that can access networked library media program resources	39.50	54.57	27.60	116.40	65.00	193.75

Schools without certified library media specialists allocated significantly fewer financial resources to their library media program in all budget categories than those schools with library media specialists.

Table III.33. Program Budget in Schools With and Without Library Media Specialists

Library Media Program Budget (Means)	Elementary Schools		Middle/Junior High Schools		High Schools	
	No LMS (N=10)	LMS (N=495)	No LMS (N=5)	LMS (N=245)	No LMS (N=2)	LMS (N=286)
Total Operating Expenditures	\$7,341	\$10,148	\$9,649	\$14,674	\$5,056	\$21,763
Books (print) (432)	\$4,757	\$6,502	\$7,508	\$8,573	\$2,091	\$9,826
Newspapers (433)	\$33	\$92	\$70	\$240	\$401	\$496
Periodicals/Magazines (434)	\$365	\$609	\$348	\$1,083	\$634	\$1,883
Reference materials (439)	\$860	\$670	\$100	\$1,154	\$989	\$2,297
Electronic format materials (instructional software including online database subscriptions (435)	\$547	\$542	\$700	\$1,153	\$0	\$3,430
Non-print materials: audiovisual and e-books (431), microform (438)	\$279	\$777	\$277	\$1,025	\$70	\$1,610
Other operating expenditures including general supplies (411)	\$441	\$834	\$486	\$1,321	\$570	\$1,852
Dues and fees such as WISCAT fee, AR, professional associations (940)	\$60	\$122	\$160	\$125	\$300	\$370
Total Capital Outlay	\$448	\$2,024	\$580	\$3,885	\$621	\$5,898
Equipment (computers, peripherals, VCRs) including purchase, additions, rental and replacement	\$392	\$1,602	\$520	\$3,076	\$127	\$4,441
Other capital purchases: furniture, shelving	\$0	\$208	\$0	\$132	\$0	\$378
Other miscellaneous	\$40	\$129	\$0	\$289	\$494	\$595
Total Budget	\$7,789	\$12,172	\$10,229	\$18,560	\$5,677	\$27,661

Students in elementary schools without library media specialists performed less well in reading and language arts than students in schools with a library media specialist as measured by the WKCE. Between 3.35 and 3.94 percent fewer students in elementary schools without library media specialists scored Advanced on these tests. Between 1.34 and 13.58 percent fewer students in middle/junior high schools without library media specialists scored Advanced on these tests.

Table III.34. Student WKCE Performance in Schools With and Without Library Media Specialists

Student Performance	Elementary Schools		Middle/Junior High Schools	
	No LMS (N=10)	LMS (N=495)	No LMS (N=5)	LMS (N=245)
Reading				
Percent Advanced	38.60	42.54	22.60	32.53
Language Arts				
Percent Advanced	31.70	35.44	20.80	28.17

**High schools were not included because only two high schools did not have library media specialists.*

The schools without library media specialists were smaller than schools with library media specialists across all grade levels. While their ethnic student composition was similar, these elementary and secondary schools had a larger percentage of students eligible for subsidized school lunch. Although teachers in schools without library media specialists had more years of teaching experience, a smaller percentage of them had advanced academic degrees.

Table III.35. Student and Teacher Profile in Schools With and Without Library Media Specialists

School Characteristics	Elementary Schools		Middle/Junior High Schools		High Schools	
	No LMS (N=10)	LMS (N=495)	No LMS (N=5)	LMS (N=245)	No LMS (N=2)	LMS (N=286)
Students						
Average number of students	218	352	211	574	235	742
Percentage White	82.0%	82.7%	79.6%	82.2%	97.9%	86.8%
Percentage LEP	5.6%	5.7%	0.6%	3.3%	0.0%	1.4%
Percentage eligible for subsidized lunch	34.3%	23.1%	9.3%	17.3%	33.7%	16.8%
Teachers						
Total number of full-time equivalent teachers	17.47	26.15	15.60	40.43	19.85	48.19
Percentage of teachers with less than five years experience	13.9%	17.2%	15.1%	20.4%	9.4%	18.7%
Percentage of teachers with master's or higher degrees	29.1%	43.8%	22.0%	42.2%	16.9%	39.7%

In addition to the 10 elementary, five middle/junior high and two high schools without certified library media specialists that responded to the survey, data were obtained from WINSS on 35 other elementary and three middle/junior high schools without library media specialists. Table III.36 and III.37 provide data on 45 elementary and eight middle/junior high schools without library media specialists and compares their performance and demographics with the elementary and middle/junior high schools with library media specialists that responded to the survey.

As shown in Table III.36, students in schools without certified library media specialists did not perform as well at the Advanced level on the WKCE reading and language arts tests.

Table III.36. Student WKCE Performance in WINSS Schools With and Without Library Media Specialists

Student Performance	Elementary Schools		Middle/Junior High Schools	
	No LMS (N=45)	LMS (N=495)	No LMS (N=8)	LMS (N=245)
Reading				
Percent Advanced	27.4%	42.5%	15.9%	32.5%
Language Arts				
Percent Advanced	24.3%	35.4%	15.5%	28.2%

**High schools were not included because only two high schools did not have library media specialists.*

The schools without library media specialists had a larger percentage of minority students, especially Black students. They also had more limited English language proficient students.

Table III.37. Student and Teacher Profile in WINSS Schools With and Without Library Media Specialists

School Characteristics	Elementary Schools		Middle/Junior High Schools	
	No LMS (N=45)	LMS (N=495)	No LMS (N=8)	LMS (N=245)
Students				
Average number of students	388	352	561	574
Percentage White	38.8%	82.7%	36.9%	82.2%
Percentage of Black students	45.7%	8.4%	48.3%	8.6%
Percentage LEP	6.5%	5.7%	8.4%	3.3%
Teachers				
Total number of full-time equivalent teachers	27.8	26.1	35.2	40.4
Percentage of teachers with less than five years experience	29.7%	17.2%	34.0%	20.4%
Percentage of teachers with master's or higher degrees	40.3%	43.8%	39.1%	42.2%

5. Library Media Programs Without Library Media Aides

Library media aides fulfill an important role in the functioning of the library media center. The staffing guidelines in *Information & Technology Literacy: A Collaborative Planning Guide for Library Media and Technology* recommend that each library media program, regardless of the size of the school, have support staff. The guidelines recommend that schools with enrollment of up to 299 students have between 1.0 and 1.5 library media program aides, schools with 300 to 799 students have 2.0 to 3.0 library aides, schools with 800 to 1,399 3.0 to 3.5 library aides, and schools with 1,400 and 2,100 have 4.0 to 4.5 library media program aides. Sixty-three of the 505 elementary schools (12.5 percent), 33 of the 250 middle/junior high schools (13.2 percent), and 34 of the 288 high schools (11.8 percent) had no library media program aides.

The presence of library support staff and the number of hours they work is critical to the ability and availability of library media specialists to perform a range of activities that are instructional and allow interaction with teachers and students. Library media program aides “free” the library media specialists from having to perform basic library management activities. The extent to which library aides are available increases library media center use by individuals and classes. The hours that aides work allows the library media specialist to be an instructional leader and a recognized professional through involvement with teachers, administrators, and with other library media specialists.

The presence of library media aides allows library media centers to operate more hours a week. Library media centers with aides were open longer hours than those with no aides. Elementary school library media centers with aides were open 2.24 hours more per week. Middle/Junior high school library media centers with aides were open 5.79 hours more per week, and high school library media centers with aides were open 2.41 hours more than those without aides.

Table III.38. Comparison of Hours of Operation in Library Media Programs With and Without Aides

Library Media Center Hours of Operation Per Week	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Mean hours library media center is open per week during school hours	32.99	34.18	32.47	36.66	36.68	37.67
Mean hours library media center is open per week before school hours	1.41	2.13	1.61	1.84	1.70	2.35
Mean hours library media center is open per week after school hours	1.69	2.02	1.33	2.70	2.99	3.76
Mean total hours library media center is open	36.09	38.33	35.41	41.20	41.37	43.78

Library aides free the library media specialist to devote time to instructional and information related activities and to promote the library media program. As shown in the table below, middle/junior high school library media programs with aides devoted 52 percent less time than programs without aides to teaching and learning activities. In high schools, library media programs without aides devoted only 59 percent as much time as programs with aides to learning and teaching activities.

Considerably less time was also spent on information access and delivery in library media programs without aides at all grade levels. Library media programs without aides spent between 48.6 to 59.9 percent of their time as programs with aides on information access and delivery services. Library media specialists in library media programs without aides were more isolated: they spent less time meeting with other library media program staff in the district and serving on planning and school management committees. For example, elementary library media specialists without aides spent 1.30 hours a week, on average, in such meetings compared with 2.39 hours spent by those in library media programs with aides. The discrepancy in the amount of time devoted to these meetings increased in middle/junior high programs (0.94 versus 2.44) and in high school programs (1.53 versus 3.38). Overall, library media programs without aides offered fewer hours of service than programs with aides. Programs without aides offered 48.1 percent of the person hours that programs with aides offered at the high school level, 51.2 percent at the middle/junior high level, and 63.0 percent at the elementary level as programs with aides.

Table III.39. Comparison of Hours Allocated to Activities in Library Media Programs With and Without Aides

Mean Hours Per Typical Week Performing Following Activities	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Learning and Teaching:	12.91	12.25	12.34	18.76	10.82	18.21
Planning instructional units with teachers	1.28	1.32	0.91	2.05	1.42	2.26
Teaching cooperatively with teachers	2.37	2.06	2.53	4.58	2.90	4.20
Assisting collaborative student projects	0.45	0.47	0.67	1.53	0.45	0.70
Providing staff development to teachers or other school staff	1.29	1.32	0.75	1.98	1.18	2.65
Teaching information skills and technology literacy to student individually or in groups	7.30	6.92	7.46	8.44	4.67	8.03
Providing technology literacy instruction and training to parents and community members	0.33	0.16	0.03	0.15	0.20	0.37
Information Access and Delivery:	13.94	23.25	14.42	26.66	14.57	29.95
Performing basic library activities (checking in and out, reshelving, processing, retrieving)	8.65	15.76	11.00	19.75	10.66	23.14
Identifying materials for instructional units developed by teachers	1.85	2.56	1.75	3.70	2.90	4.42
Offering reading incentive activities for students	3.44	4.93	2.68	3.21	1.01	2.39
Program Administration:	6.81	17.98	7.14	22.78	12.33	30.28
Collection management (selection, inventory, weeding)	1.36	2.88	1.61	3.76	3.67	6.74
Managing library technology	1.68	2.78	1.09	5.02	3.08	7.24
Administering electronic reading programs (Accelerated Reader, Electronic Bookshelf, etc.)	0.31	0.90	0.13	1.00	0.27	0.80
Meeting with other library staff from the building and/or the district	0.30	0.80	0.20	0.69	0.47	1.02
Serving on building and/or district planning and management committees	0.34	0.49	0.20	0.53	0.36	0.85
Meeting with principal or other building or district administrators	0.24	0.36	0.16	0.42	0.16	0.61
Attending faculty or staff meetings and in-services	0.42	0.74	0.38	0.80	0.54	0.90
Performing duties unrelated to school library services	2.18	9.03	3.39	10.55	3.78	12.11
Total Number of Hours	33.66	53.46	34.91	68.21	37.72	78.44

Library media programs without aides experienced lower levels of service and activity compared to programs with aides. Library media programs without aides had fewer scheduled and unscheduled individual and class visits. Fewer of the class visits were flexibly scheduled, making the program less responsive to instructional needs. They also made fewer loans to or requests for materials from other library media centers. At all

grade/school levels, programs without aides offered fewer information skills instruction sessions.

Table III.40. Comparison of Use in Library Media Programs With and Without Aides

Library Media Center Use Per Week	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Number of scheduled and unscheduled visits to library by individuals	113.21	158.81	182.76	422.86	344.53	670.28
Number of scheduled and unscheduled visits to library by classes or other groups	19.40	23.28	21.36	25.57	15.53	25.58
Percent of flexibly schedules classes visiting the library media center	10.2%	14.5%	34.8%	47.9%	43.5%	61.9%
Number of scheduled and unscheduled information skills instruction contacts with individuals	43.70	51.30	47.27	109.93	40.29	93.00
Number of scheduled and unscheduled information skills instruction contacts with classes or other groups	11.40	12.03	10.79	11.58	4.66	9.87
Total number of books and other materials checked out during the most recent full week	768.32	702.38	367.09	473.60	151.74	231.40
Number of materials used in the library	730.87	926.01	276.27	329.53	123.12	230.64
Number of loans by this library to other librarians in or outside district	5.46	7.53	2.26	5.10	1.38	4.27
Number of loans requested by this library from other libraries in or outside the district	3.88	6.28	2.42	5.07	2.64	5.04

Overall, library media programs without support staff had smaller print and electronic resource collections than those programs with library media aides.

Table III.41. Comparison of Collection in Library Media Programs With and Without Aides

Library Media Program Collection	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Books, including encyclopedias and reference	12,436	12,182	12,037	12,986	11,378	14,283
Current print subscriptions to periodicals, newspapers, magazines, journals	20.41	20.70	23.55	37.64	41.32	61.50
Electronic subscriptions received via the Internet	1.83	2.29	4.21	3.18	3.65	4.75
Encyclopedias and reference titles on CD ROM	6.73	3.91	1.79	5.25	4.41	3.14
Audio materials (cassettes, CDs, LPs)	125.51	108.84	43.70	95.47	35.79	115.54
Video/DVD materials (cassettes, disks and laser discs)	317.03	423.14	350.09	492.00	474.71	763.69
Computer software packages for use in school library by students and staff	50.84	53.40	14.45	26.12	14.00	13.59

Library media programs without aides had less technology in or under the supervision of the library media center than programs with aides.

Table III.42. Comparison of Technology Resources in Library Media Programs With and Without Aides

Library Media Program Technology	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Computers in or under supervision of library media program in or under supervision of library media program	23.22	26.17	24.24	35.11	23.41	35.94
Laptops	8.71	14.13	12.18	15.29	2.91	9.98
Scanners	1.11	0.94	1.00	1.40	0.76	1.31
Printers	2.75	3.94	2.70	3.97	1.97	3.37
Data projectors (LCDs)	1.60	1.63	1.36	2.79	2.59	2.98
DVD recorders/players	2.70	1.98	1.24	4.37	3.41	4.81
VCR recorders/players	5.13	8.09	6.00	11.65	9.21	13.72
Digital cameras	2.60	2.98	1.82	3.04	2.53	3.08
Video cameras	1.43	1.58	1.48	2.50	1.94	3.19
School computers that can access networked library media program resources	47.79	55.19	103.24	116.35	114.56	203.34

Library media programs without aides allocated significantly fewer financial resources to their library media program in all budget categories than library media programs with aides. Operating expenditures of library media programs without aides were significantly smaller than those of programs with aides. The financial resource gap between programs that had aides and programs without aides increased across grade levels. The operating

budgets of elementary library media programs without aides were only 91.0 percent of those programs with library aides. Operating expenditures of middle/junior high school library media programs without aides were 82.0 percent of those with aides. The operating expenditures of high school library media programs without aides were only 67.1 percent of those programs with library aides.

The total budget of library media programs without aides was significantly smaller than the total budget of programs with aides. At the elementary level, the total budget of programs without aides was 88.4 percent of the total budget of programs with aides, 81.4 percent at the middle/junior high level, and 69.8 percent at the high school level.

Table III.43. Comparison of Budget in Library Media Programs With and Without Aides

Library Media Program Budget	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Total Operating Expenditures	\$9,291	\$10,206	\$12,241	\$14,929	\$15,106	\$22,522
Books (print) (432)	\$6,591	\$6,450	\$8,023	\$8,632	\$8,222	\$9,980
Newspapers (433)	\$56	\$96	\$265	\$232	\$327	\$518
Periodicals/Magazines (434)	\$576	\$608	\$829	\$1,105	\$1,371	\$1,942
Reference materials (439)	\$472	\$702	\$716	\$1,196	\$1,863	\$2,344
Electronic format materials (instructional software including online database subscriptions) (435)	\$310	\$575	\$1,274	\$1,124	\$975	\$3,731
Non-print materials: audiovisual and e-books (431), microform (438)	\$746	\$770	\$609	\$1,071	\$1,327	\$1,635
Other operating expenditures including general supplies (411)	\$497	\$873	\$448	\$1,435	\$859	\$1,975
Dues and fees such as WISCAT fee, AR, professional associations (940)	\$42	\$132	\$77	\$133	\$161	\$397
Total Capital Outlay	\$1,554	\$2,055	\$3,112	\$3,927	\$4,804	\$6,003
Equipment (computers, peripherals, VCRs) including purchase, additions, rental and replacement	\$1,389	\$1,605	\$2,836	\$3,054	\$4,205	\$4,439
Other capital purchases: furniture, shelving	\$142	\$329	\$157	\$564	\$523	\$901
Other miscellaneous	\$23	\$142	\$119	\$309	\$76	\$663
Total Budget	\$10,844	\$12,262	\$15,353	\$18,855	\$19,910	\$28,525

Elementary schools with and without library media aides were similar in student enrollment and in number of teachers. Middle/Junior high and high schools without library media aides had slightly fewer students and had slightly fewer teachers than schools with library media aides. High schools without library media aides were two-thirds the size of high schools with library media aides and had 31.9 percent fewer teachers. Schools without library media aides had a smaller percentage of White students across all grade levels and a significantly larger percentage of Black students. They also had a larger percentage of teachers with less than five years of experience.

Table III.44. Comparison of Student and Teacher Profile in Library Media Programs With and Without Aides

School Characteristics	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Students						
Average number of students	347	350	533	571	519	768
Percentage White	70.7%	84.4%	64.0%	84.2%	73.7%	88.6%
Percentage Black	12.4%	4.6%	26.0%	5.9%	17.0%	4.2%
Percentage LEP	8.1%	5.4%	2.8%	3.3%	0.7%	1.5%
Percentage eligible for subsidized lunch	15.9%	24.4%	7.8%	18.5%	17.8%	16.8%
Teachers						
Total number of full-time equivalent teachers	25.44	26.05	36.09	40.52	33.97	49.87
Percentage of teachers with less than five years experience	21.0%	16.5%	25.6%	19.5%	21.6%	18.3%
Percentage of teachers with master's or higher degrees	44.4%	43.4%	45.1%	41.3%	37.7%	39.8%

A larger percentage of students in schools with library media programs that had aides scored Advanced in WKCE reading and language arts than in schools whose library media programs had no support staff. A larger percentage of students in middle/junior high and high schools with library media programs that had aides scored Proficient than in schools with library media programs that did not have aides. For example, in middle/junior high schools whose library media programs had aides, 11.1 percent more students scored Proficient or Advanced in reading and 9.6 percent scored Proficient or Advanced in language arts than students in schools where library media programs had no aides. At the high school level, 8.8 percent more students in schools with library media programs with aides scored Advanced in reading and 9.3 percent more scored Proficient or Advanced in language arts than high school students in programs without aides. At the elementary school level, 3.0 percent more students in schools with library media program aides scored Advanced in reading and 1.9 percent more students scored Advanced in language arts than students in schools where media programs had no aide support.

Table III.45. Comparison of Student Performance on WKCE in Library Media Programs With and Without Aides

Student Performance	Elementary Schools		Middle/Junior High Schools		High Schools	
	No Aides (N=63)	Aides (N=442)	No Aides (N=33)	Aides (N=217)	No Aides (N=34)	Aides (N=254)
Reading						
Percent Proficient	34.94	34.20	39.80	44.82	17.88	17.98
Percent Advanced	39.84	42.83	27.03	33.13	37.79	46.51
Language Arts						
Percent Proficient	39.14	38.94	33.91	39.17	42.00	46.91
Percent Advanced	33.71	35.60	24.26	28.59	10.62	15.01

IV. LIBRARY MEDIA PROGRAM FINANCIAL RESOURCES

A viable library media program needs an adequate budget to acquire materials, equipment and supplies. An adequate budget not only “sustains existing programs but also supports the inclusion of new information and technology services necessary to address the changing needs of the school community” according to the *Information & Technology Literacy: A Collaborative Planning Guide for Library Media and Technology School Information and Technology* (page 34). The Wisconsin Department of Public Instruction recognizes that library media programs in all schools regardless of school size need to maintain a balanced, current and age appropriate and curricular relevant collection to meet the educational needs of students. Wisconsin provides districts, based on the number of census students, with Common School Fund library aid to purchase library resources. In many schools, these funds supplement locally budgeted dollars for library media resources and are included in the “school funds” calculations.

On average, library media program operating expenditures (funded by the school) ranged from \$30.10 per student in elementary schools to \$35.82 per student in high schools. Programs received between \$12.60 and \$15.18 per student from other sources. When taking all funding sources into account, library media program operating expenditures per student ranged from \$42.95 per student at the elementary and middle school levels to \$51.00 per student at the high school level.

**Table IV.1. Library Media Program Operating Budget Per Student
2004-05**

Library Media Program	Mean Library Media Program Operating Budget Per Student		
	School Funds Only	Other Funding Sources*	Total
Elementary school library media programs	\$30.10	\$12.85	\$42.95
Middle/Junior high school library media programs	\$30.32	\$12.60	\$42.93
High school library media programs	\$35.82	\$15.18	\$51.00

* Other funding sources include grants, funds from book fairs, PTA contributions, etc.

1. Elementary School Library Media Program Budget

More than 67 percent of elementary school library media programs reported that they prepare and submit a library media program budget request to their principal. According to 45.5 percent of elementary media library specialists, their program budget is determined on a per student basis, 26.1 percent indicated that their program budget is calculated using an administrative formula, and 12.7 percent reported that their budget is determined on an education need basis defined by the library media specialist and other staff. Nearly 16 percent identified other methods by which their operating budget is determined.

On average, elementary school library media program operating expenditures in 2004-05 were \$11,797 and the capital outlay budget was \$3,237. Seventy percent of the total budget came from the school and 30 percent came from other sources, such as grants, book fairs, PTA contributions. Seventy-eight percent of operating budget came from the school, as did 41.8 percent of the capital outlay budget. Twenty-two percent of operating expenditures and 58.2 percent of capital outlay came from other sources. Elementary school library media programs spent, on average, 76.3 percent of their operating budget on print materials and 13.9 percent on electronic resources and access to information.

Table IV.2. Elementary School Library Media Program 2004-05 Budget

2004-05 Budget	School Budget		All Other Sources		Total*	
	\$ Means	%	\$ Means	%	\$ Means	%
Total Operating Expenditures	\$9,180	87.1%	\$2,617	58.2%	\$11,797	78.5%
Books (print) (432)	\$5,649	53.6%	\$1,708	38.0%	\$7,357	48.9%
Newspapers (433)	\$93	0.9%	\$21	0.5%	\$114	0.8%
Periodicals/Magazines (434)	\$593	5.6%	\$104	2.3%	\$697	4.6%
Reference materials (439)	\$662	6.3%	\$176	3.9%	\$838	5.6%
Electronic format materials (instructional software including online database subscriptions) (435)	\$482	4.6%	\$241	5.3%	\$723	4.8%
Non-print materials: audiovisual and e-books (431), microform (438)	\$772	7.3%	\$151	3.3%	\$923	6.1%
Other operating expenditures including general supplies (411)	\$819	7.8%	\$144	3.2%	\$963	6.4%
Dues and fees such as WISCAT fee, AR, professional associations (940)	\$110	1.0%	\$72	1.6%	\$182	1.2%
Total Capital Outlay	\$1,355	12.9%	\$1,882	41.8%	\$3,237	21.5%
Equipment (computers, peripherals, VCRs) including purchase, additions, rental and replacement	\$1,071	10.2%	\$1,384	30.8%	\$2,455	16.3%
Other capital purchases: furniture, shelving	\$143	1.3%	\$434	9.6%	\$577	3.8%
Other miscellaneous	\$141	1.3%	\$64	1.4%	\$205	1.4%
Total Budget	\$10,535	100.0%	\$4,499	100.0%	\$15,034	100.0%

* Total budget was calculated by adding up the means of school budget and all other sources.

Elementary school library media program operating expenditures were most highly associated with staff and collection resources. Library media programs with higher operating budgets were likely to have more staff resources, be open more hours a week and have a larger and more varied print and electronic collection.

**Table IV.3. Elementary School Library Media Program
Total Operating Expenditures Per Student**

Correlation of Library Media Program Operating Expenditures Per Student with:	Pearson Correlation		
	Correlation (r)	Probability (p)	Number (n)
Number of books per 100 students	.218	.000	496
Current subscriptions of periodicals, newspapers, magazines journals per 100 students	.277	.000	497
Electronic subscriptions per 100 students	.577	.000	493
Video/DVD materials per student	.508	.000	486
Computer software packages per 100 students	.852	.000	481
Library media specialists per 100 students	.797	.000	504
Library media specialists hours a week per 100 students	.877	.000	504
Library media program staff per 100 students	.554	.000	504
Library media program staff a week per 100 students	.798	.000	504
Total number of hours library media center is open in a typical week per 100 students	.862	.000	486

2. Middle/Junior High School Library Media Program Budget

Seventy-two percent of middle/junior school library media specialists reported that they prepare and submit a library budget request to their building administrator. Middle/Junior high media library programs primarily determined their budget either on a per student basis (28.8 percent) or through an administrative formula (28.8 percent). About 21 percent also used educational need as the basis for their budget. Nearly 22 percent used other strategies for determining the program's budget.

The average operating expenditures of middle/junior high school libraries in 2004-05 was \$18,439 and the average capital outlay budget was \$6,072. Seventy-four percent of library media program operating expenditures came from the school, as did 60.7 percent of its capital outlay budget. Twenty-six percent of operating expenditures and 39.3 percent of capital outlay came from other sources. Middle/Junior high school library media programs spent, on average, 74 percent of their operating budget on print materials and 16.8 percent on electronic resources and online access to information.

Table IV.4. Middle/Junior High School Library Media Program 2004-05 Budget

2004-05 Budget	School Budget		All Other Sources		Total*	
	\$ Means	%	\$ Means	%	\$ Means	%
Total Operating Expenditures	\$13,627	78.7%	\$4,812	66.9%	\$18,439	75.2%
Books (print) (432)	\$7,529	43.5%	\$2,921	40.6%	\$10,450	42.6%
Newspapers (433)	\$243	1.4%	\$44	0.6%	\$287	1.2%
Periodicals/Magazines (434)	\$1,046	6.0%	\$303	4.2%	\$1,349	5.5%
Reference materials (439)	\$1,178	6.8%	\$399	5.5%	\$1,577	6.4%
Electronic format materials (instructional software including online database subscriptions (435))	\$1,119	6.5%	\$582	8.1%	\$1,701	6.9%
Non-print materials: audiovisual and e- books (431), microform (438)	\$1,010	5.8%	\$390	5.4%	\$1,400	5.7%
Other operating expenditures including general supplies (411)	\$1,345	7.8%	\$148	2.1%	\$1,493	6.1%
Dues and fees such as WISCAT fee, AR, professional associations (940)	\$157	0.9%	\$25	0.3%	\$182	0.7%
Total Capital Outlay	\$3,689	21.3%	\$2,383	33.1%	\$6,072	24.8%
Equipment (computers, peripherals, VCRs) including purchase, additions, rental and replacement	\$2,774	16.0%	\$1,951	27.1%	\$4,725	19.3%
Other capital purchases: furniture, shelving	\$557	3.2%	\$352	4.9%	\$909	3.7%
Other miscellaneous	\$358	2.1%	\$80	1.1%	\$438	1.8%
Total Budget	\$17,316	100.0%	\$7,195	100.0%	\$24,511	100.0%

* Total budget was calculated by adding up the means of school budget and all other sources.

Middle/Junior high school library media programs with higher operating budgets were more likely to have more staff resources, including both library media specialists and aides, and more staff hours per 100 students. They were also likely to be open more hours per week and to have larger print and electronic resource collections.

**Table IV.5. Middle/Junior High School Library Media Programs
Total Operational Expenditures Per Student**

Correlation of Library Media Program Operational Expenditures Per Student with:	Pearson Correlation		
	Correlation (r)	Probability (p)	Number (n)
Number of books per 100 students	.309	.000	245
Current subscriptions of periodicals, newspapers, magazines journals per 100 students	.139	.030	244
Electronic subscriptions per 100 students	.139	.030	243
Encyclopedias and electronic reference titles on CD ROM per 100 students	.132	.041	238
Audio materials per 100 students	.217	.001	239
Video/DVD materials per student	.188	.003	242
Computer software packages per 100 students	.143	.030	239
Library media specialists per 100 students	.435	.000	250
Library media specialist hours per 100 students	.406	.000	250
Library media program staff per 100 students	.445	.000	249
Library media program staff hours per 100 students	.460	.000	249
Total number of hours library media center is open in a typical week per 100 students	.442	.000	239

3. High School Library Media Program Budget

Eighty-two percent of high school libraries reported that they prepare and submit a library budget request to their school building administrator. Most commonly, library media specialists reported that they determine their program budget based on educational need (32.3 percent). More than 25 percent reported that their program budget is determined through an administrative formula, and 21.5 percent determine the program budget on a per student basis. Twenty percent of the library media specialists indicated that they use other strategies to develop their program budget.

On average, a high school library media program's operating expenditures in 2004-05 were \$28,814 and the capital outlay budget was \$8,984. Seventy-one percent of the program operating expenditures and 66.4 percent of its capital outlay budget came from the school; 29 percent of operating expenditures and 33.6 percent of capital outlay came from other sources. High school libraries spent, on average, 66 percent of their operating budget on print materials and 25.1 percent on electronic resources and online access to information.

Table IV.6. High School Library Media Program 2004-05 Budget

2004-05 Budget	School Budget		All Other Sources		Total*	
	\$ Means	%	\$ Means	%	\$ Means	%
Total Operating Expenditures	\$20,578	77.5%	\$8,236	73.2%	\$28,814	76.2%
Books (print) (432)	\$9,084	34.2%	\$3,710	33.0%	\$12,794	33.8%
Newspapers (433)	\$480	1.8%	\$152	1.3%	\$632	1.7%
Periodicals/Magazines (434)	\$1,808	6.8%	\$544	4.8%	\$2,352	6.2%
Reference materials (439)	\$2,213	8.3%	\$1,023	9.1%	\$3,236	8.6%
Electronic format materials (instructional software including online database subscriptions (435))	\$3,035	11.4%	\$2,082	18.5%	\$5,117	13.5%
Non-print materials: audiovisual and e- books (431), microform (438)	\$1,678	6.3%	\$449	4.0%	\$2,127	5.6%
Other operating expenditures including general supplies (411)	\$1,853	7.0%	\$255	2.3%	\$2,108	4.6%
Dues and fees such as WISCAT fee, AR, professional associations (940)	\$427	1.6%	\$21	0.2%	\$448	1.2%
Total Capital Outlay	\$5,967	22.5%	\$3,017	26.8%	\$8,984	23.8%
Equipment (computers, peripherals, VCRs) including purchase, additions, rental and replacement	\$4,557	17.2%	\$1,562	13.9%	\$6,119	16.2%
Other capital purchases: furniture, shelving	\$729	2.7%	\$1,019	9.0%	\$1,748	4.6%
Other miscellaneous	\$681	2.6%	\$436	3.9%	\$1,117	2.9%
Total Budget	\$26,545	100.0%	\$11,253	100.0%	\$37,798	100.0%

* Total budget was calculated by adding up the means of school budget and all other sources.

High school library media programs with higher operating budgets per student were more likely to have larger and more varied print and electronic resource collections. They were also likely to have more staffing resources and be open more hours per week per 100 students.

**Table IV.7 High School Library Media Programs
Total Operational Expenditures Per Student**

Correlation of Library Media Program Operational Expenditures Per Student with:	Pearson Correlation		
	Correlation (r)	Probability (p)	Number (n)
Library Media Program Collection:			
Number of books per 100 students	.998	.000	285
Current subscriptions of periodicals, newspapers, magazines journals per 100 students	.990	.000	286
Electronic subscriptions per 100 students	.995	.000	282
Audio materials per 100 students	.942	.000	278
Video/DVD materials per student	.994	.000	281
Staffing:			
Library media specialists per 100 students	.997	.000	287
Library media specialist hours per 100 students	.996	.000	287
Library media program staff per 100 students	.998	.000	287
Library media program staff hours per 100 students	.998	.000	287
Total number of hours library media center is open in a typical week per 100 students	.998	.000	281

V. LIBRARY MEDIA PROGRAM INSTRUCTIONAL ROLE

The Wisconsin Department of Public Instruction promotes an integrated and standards-aligned curriculum in all content areas and for all students implemented through a collaborative team model. Library media specialists play an important role in curriculum integration as members of the collaborative instructional team. Specifically, library media specialists are expected to collaborate with teachers in designing, implementing and evaluating instruction; selecting and delivering resources; providing technology and facilities; and co-teaching and guiding students in learning activities. Library media specialists are expected to participate in district and school curriculum development that integrates information and technology literacy standards into all content areas. A primary role of the library media specialist is to support classroom reading instruction and reading guidance for the academic and personal success of all students.

The survey listed a total of 16 roles certified library media specialists and support staff are expected to perform. Data was collected on the number of hours in a typical week that library media program staff spent on each of these activities. These activities were divided into three categories:

- Program administration
- Information access and delivery
- Teaching and learning

Table V.1 illustrates the ten activities on which library media staff spent a majority of their time.

Table V.1. Library Media Program Staff Activities

Elementary School Library Media Program	Middle/Junior High School Library Media Program	High School Library Media Program
Teaching information skills	Teaching information skills	Teaching information skills
Offering reading incentive activities for students	Managing library technology	Managing library technology
Managing library technology	Teaching cooperatively with teachers	Identifying materials for instructional units developed by teachers
Identifying materials for instructional units developed by teachers	Identifying materials for instructional units developed by teachers	Teaching cooperatively with teachers
Teaching cooperatively with teachers	Offering reading incentive activities for students	Providing staff development to teachers
Providing staff development to teachers	Planning instructional units with teachers	Offering reading incentive activities for students
Planning instructional units with teachers	Providing staff development to teachers	Planning instructional units with teachers
Administering electronic reading programs	Assisting collaborative student projects	Assisting collaborative student projects
Meeting with library staff in building and/or district	Administering electronic reading programs	Meeting with library staff in building and/or district
Attending faculty or staff meetings and in-services	Attending faculty or staff meetings and in-services	Attending faculty or staff meetings and in-services

Nearly all library media programs reported engaging in teaching and learning activities, as shown in Table V.2 below. For example,

- Teaching cooperatively with teachers was less prevalent in elementary schools than in secondary schools. Only 64.0 percent of elementary library media specialists reported that they taught cooperatively with teachers compared with 84 percent of secondary library media specialists.
- Planning instructional units with teachers was slightly less prevalent in elementary library media programs. Eighty percent of elementary library media specialists planned instructional units with classroom teachers compared with 86.1 percent in high school and 90.0 percent in middle school programs. However, at all levels 95 percent or more of library media specialists reported selecting materials for instructional units developed by teachers.
- More than 93 percent of certified library media specialists reported that they taught information skills and technology literacy to students.

- Between 80.8 and 86.5 percent of the library media specialists provided professional development activities for teachers, administrators and school support staff.
- Fifty-six to 81 percent of all library media specialists participated in school or district curriculum, technology, or planning committees.
- Between 58.0 and 66.0 percent of the programs reported that their staff performed duties unrelated to school library media program services, such as recess duty; thereby further constraining their staff resources.

Table V.2. Number and Percentage of Staff Engaging in Activities

Activities	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Number	Percent	Number	Percent	Number	Percent
Learning and Teaching:	490	97.0%	244	97.6%	278	96.5%
Planning instructional units with teachers	404	80.0%	225	90.0%	248	86.1%
Teaching cooperatively with teachers	323	64.0%	210	84.0%	241	83.7%
Assisting collaborative student projects	193	38.2%	124	49.6%	120	41.7%
Providing staff development to teachers or other school staff	408	80.8%	208	83.2%	249	86.5%
Teaching information skills and technology literacy to students individually or in groups	470	93.1%	242	96.8%	269	93.4%
Providing technology literacy instruction and training to parents and community members	77	15.2%	28	11.2%	48	16.7%
Information Access and Delivery:	501	99.2%	245	98.0%	284	98.6%
Performing basic library activities (checking in and out, reshelving, processing, retrieving)	498	98.6%	244	97.6%	281	97.6%
Identifying materials for instructional units developed by teachers	484	95.8%	237	94.8%	277	96.2%
Offering reading incentive activities for students	467	92.5%	213	85.2%	217	75.3%
Program Administration:	451	89.3%	223	89.2%	265	92.0%
Collection management (selection, inventory, weeding)	433	85.7%	218	87.2%	259	89.9%
Managing library technology	412	81.6%	205	82.0%	248	86.1%
Administering electronic reading programs (Accelerated Reader, Electronic Bookshelf, etc.)	172	34.1%	83	33.2%	75	26.0%
Meeting with other library staff from the building and/or the district	370	73.3%	159	63.6%	200	69.4%
Serving on building and/or district planning and management committees	283	56.0%	145	58.0%	199	69.1%
Meeting with principal or other building or district administrators	289	57.2%	146	58.4%	180	62.5%
Attending faculty or staff meetings and in-services	389	77.0%	198	79.2%	234	81.3%
Performing duties unrelated to school library services	338	66.9%	145	58.0%	169	58.7%

Library media program staff spent between 23.6 percent (high school) and 28.1 percent (middle school) of their time on Learning and Teaching activities (see Table V.3 below). These activities included planning instructional units, teaching cooperatively with teachers, assisting collaborative student projects, teaching professional educators, teaching information skills and technology literacy to students and providing technology literacy instruction and training to parents and community members.

- They spent between 10.4 and 13.7 percent teaching information skills and technology literacy to students.
- They spent less than ten percent of their time planning new instructional units with teachers and teaching collaboratively with teachers.
- Staff spent between 4.1 and 6.7 percent of their time on teaching cooperatively with teachers.
- Staff spent between 2.6 and 3.0 percent of their time planning instructional units with teachers.
- They spent between 2.6 and 3.4 percent of their time per week providing staff development to teachers and other school staff.

A greater amount of staff time is spent:

- Teaching information skills and technology literacy to individual students and classes: between 10.4 and 13.7 percent of time.
- Providing reading incentive activities: between 3.0 (high school) and 9.3 (elementary school) percent of time.

Activities associated with Information Access and Delivery consumed between 38.2 and 43.3 percent of program staff time. The major activity in this cluster – the performance of basic library activities – occupied about 30 percent of program staff time. In fact, this was the activity on which program staff spent the most time overall.

Program Administration activities consumed between 32.4 and 38.2 of program staff time. These activities included informational and planning meetings with staff from other schools and other district library media programs. Other program administration activities included strategic planning meetings with building and district administrators and participation on building and district curriculum and leadership committees. This took on average 3.4 and 4.4 percent of staff time. Program staff spent 15.0 to 16.0 percent of their time involved in the performance of duties unrelated to the library media program, such as recess, hall or lunch supervision.

Table V.3. School Library Media Program Staff Activities

Mean Hours per Week	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Mean Hours	%	Mean Hours	%	Mean Hours	%
Learning and Teaching:	12.33	24.2%	17.92	28.1%	17.34	23.6%
Planning instructional units with teachers	1.31	2.6%	1.90	3.0%	2.16	2.9%
Teaching cooperatively with teachers	2.10	4.1%	4.30	6.7%	4.05	5.5%
Assisting collaborative student projects	0.46	0.9%	1.41	2.2%	1.82	2.5%
Providing staff development to teachers or other school staff	1.32	2.6%	1.82	2.9%	2.48	3.4%
Teaching information skills and technology literacy to student individually or in groups	6.97	13.7%	8.34	13.1%	7.63	10.4%
Providing technology literacy instruction and training to parents and community members	0.16	0.3%	0.15	0.2%	0.35	0.5%
Information Access and Delivery:	22.09	43.3%	25.12	39.5%	28.13	38.2%
Performing basic library activities (checking in and out, shelving, processing, retrieving)	14.88	29.2%	18.55	29.1%	21.66	29.4%
Identifying materials for instructional units developed by teachers	2.48	4.9%	3.44	5.4%	4.24	5.7%
Providing reading incentive activities for students	4.74	9.3%	3.13	4.9%	2.23	3.0%
Program Administration:	16.58	32.5%	20.65	32.4%	28.16	38.2%
Collection management (selection, inventory, weeding)	2.69	5.3%	3.47	5.4%	6.38	8.7%
Managing library technology	2.64	5.2%	4.50	7.1%	6.75	9.2%
Administering electronic reading programs (Accelerated Reader, Electronic Bookshelf, etc.)	0.83	1.6%	0.89	1.4%	0.74	1.0%
Meeting with other library staff from the building and/or the district	0.74	1.4%	0.62	1.0%	0.96	1.3%
Serving on building and/or district planning and management committees	0.47	0.9%	0.48	0.7%	0.79	1.1%
Meeting with principal or other building or district administrators	0.35	0.7%	0.39	0.6%	0.55	0.7%
Attending faculty or staff meetings and in-services	0.70	1.4%	0.74	1.1%	0.86	1.2%
Performing duties unrelated to school library services	8.17	16.0%	9.57	15.0%	11.12	15.1%
Total Number of Hours	51.00	100.0%	63.70	100.0%	73.63	100.0%

VI. LIBRARY MEDIA PROGRAM COLLECTION

Wisconsin’s *Model Academic Standards for Information and Technology Literacy* sets performance and proficiency standards at the elementary, middle and high school levels. The benchmarks are set at grades 4, 8, and 10. In addition, Wisconsin Statute 121.02(h) states that “each school board shall: Provide adequate instructional materials, texts, and library services which reflect the cultural diversity and pluralistic nature of American society.” These standards recognize the need to provide students access to a wide variety of information resources and technology tools to meet the diverse needs of the learning community. To meet these requirements districts are required to have a school board approved instructional materials selection and reconsideration policy. The purpose of these policies is to ensure that the library media program collection is both current and balanced and that it is relevant to the current academic curriculum. The FCC and No Child Left Behind require districts to have an acceptable use and Internet safety policies that cover staff and student use of the Internet.

More than 90 percent of the school library media programs had a school board approved collection development policy. Between 90.5 and 93.4 percent of the programs also had an instructional materials selection policy that also addressed the reconsideration of challenged materials. However, only 75.2 to 80.9 percent of the programs reported that they had a weeding policy. Less than 56 percent of the library media programs had a policy and procedures manual and less than 40 percent of those were board-approved documents.

Table VI.1. Library Media Program Collection Development Policies

Library Media Programs with Collection Development Policies	Elementary Schools	Middle/Junior High Schools	High Schools
	(505) %	(250) %	(288) %
Percent of library media programs with a collection development policy	91.7%	90.8%	91.7%
Percent of library media programs with materials selection policy	90.5%	90.8%	93.4%
Percent of library media programs with weeding policy	80.6%	75.2%	80.9%
Percent of library media programs with reconsideration of challenged materials policy	90.7%	90.4%	93.1%
Percent of library media programs with a policy and procedures manual	54.9%	55.6%	49.3%
Percent of library media programs with a policy and procedures manual approved by the district school board	39.4%	37.6%	33.7%

In addition to a print collection, more than 90 percent of the library media programs subscribed to newspapers and magazines, including video, DVD and audio recordings. The number of electronic resources library media programs owned or could access

varied. Between 73.1 and 83.0 percent of the programs had electronic resource subscriptions; approximately one-half of the programs had encyclopedias and reference titles on CD ROM (42.8 to 46.8 percent) and between 36.5 and 47.7 percent had computer software packages for student and staff circulation. Less than ten percent of the programs had e-books. E-books were more prevalent at the high school level than at the elementary and middle school levels. Overall, library media program nonfiction print collections were relatively old. The average copyright date of the elementary nonfiction collection is pre-1991 with the average middle school and high school collection older than 1988.

Table VI.2. Percentage of School Library Media Programs with Following Collections

Collection	Elementary Schools	Middle/Junior High Schools	High Schools
	(505) %	(250) %	(288) %
Books: print volumes, encyclopedias and reference	97.4%	97.6%	98.6%
Current print subscriptions to periodicals, newspapers, magazines, journals	97.8%	97.2%	99.3%
Electronic subscriptions received via the Internet	73.1%	77.6%	83.0%
Encyclopedias and reference titles on CD ROM	45.9%	46.8%	42.8%
Audio materials (cassettes, CDs, LPs)	87.3%	87.6%	87.2%
Video/DVD materials (cassettes, disks and laser discs)	94.7%	94.4%	95.1%
e-Books	3.0%	4.0%	8.7%
Computer software packages circulated to students and staff	47.7%	38.8%	36.5%
Average age of print non-fiction collection	14.3	14.1	17.6

Library media program collections varied greatly both within and across all school/grade levels. The size of collections by category of material, mean and maximum is displayed in Table VI.3.

Table VI.3. School Library Media Program Collection Holdings

Holdings in Collection	Elementary Schools Mean	Middle/Junior High Schools Mean	High Schools Mean
Books: print volumes including encyclopedias and reference	12,410	13,123	14,037
Current print subscriptions to periodicals, newspapers, magazines, journals	20.95	36.66	59.33
Electronic subscriptions received via the Internet	2.28	3.41	4.70
Encyclopedias and reference titles on CD ROM	4.48	5.03	3.39
Audio materials (cassettes, CDs, LPs)	116.21	92.72	109.55
Video/DVD materials (cassettes, disks and laser discs)	425.06	488.91	745.09
Computer software packages for use in school library by students and staff	55.62	26.72	14.39

Access to library media program resources is a key component of *Wisconsin's Educational Information and Technology Plan PK-1 (WDPI, 2000)*. The survey measured the degree of access to three categories of resources: library catalog, online databases and BadgerLink, a collection of online databases provided free of charge to all libraries in the state. More than three-quarters of the library media programs reported having an online public access catalog. In 60 percent or more of the schools the catalog could be accessed from all school computers. However, only in 28.1 to 31.3 percent of schools could the catalog be accessed from outside of the school.

Access to the library media program's electronic databases was available from classrooms in more than 85 percent of the schools. Between 70.7 and 80.9 percent of the schools also provided access to online resources from all school computers. Home or remote access of online resources was available in 60.8 to 74.0 percent of the schools.

Between 74.1 and 87.2 percent of the library media programs had a link on their webpage to BadgerLink. A smaller percentage of elementary school library media programs than secondary programs had such a link. A smaller percentage (58.6%) of elementary school library media programs than secondary programs (76.7%) provided training to teachers and administrators on how to access and use BadgerLink databases. Only about one-quarter of the programs assisted teachers in using the Wisconsin Department of Public Instruction's Curriculum Resource Center (CRC) and MarcoPolo resources for lesson planning.

Table VI.4. Access to Library Media Program Collection

Access from:	Elementary Schools	Middle/Junior High Schools	High Schools
	(505) %	(250) %	(288) %
Have an online public access catalog (OPAC)	80.0%	77.6%	76.4%
Online Public Access Catalog is accessible from:			
All school computers	64.2%	63.6%	60.1%
More than 50 percent of school computers	64.0%	56.0%	50.3%
Outside of school	31.3%	29.6%	28.1%
Licensed online databases accessible from:			
Classrooms	85.3%	85.2%	85.8%
All school computers	70.7%	80.4%	80.9%
More than 50 percent of school computers	73.1%	75.2%	71.5%
Teachers home computers	63.8%	70.0%	74.0%
Students home computers	60.8%	68.0%	73.6%
BadgerLink:			
Library media program has link to BadgerLink on library media center or school web page	74.1%	84.4%	87.2%
Provide instruction in how to use BadgerLink as part of library instructional skills	56.0%	77.5%	87.8%
Introduced BadgerLink to administration and staff through staff development	58.6%	65.2%	76.7%
Assist teachers in using the DPI Curriculum Resource Center (CRC) and MarcoPolo when they plan lessons	25.7%	27.5%	29.2%

VII. LIBRARY MEDIA PROGRAM TECHNOLOGY RESOURCES

Library media programs provide a wide range of multimedia and technology-related equipment and systems. Electronic resources can be accessed through computers in or under library media program supervision. They can also be accessed by school computers from classrooms and offices and other school facilities, thereby broadening the library media program's presence throughout the school and outside of the physical location of the library media center.

Most library media programs (90 percent or more) had computers, printers, televisions, and VCR recorders/players. Newer technology such as laptops, data projectors and scanners were less prevalent. Laptops were available in 58.4 to 62.5 percent of the library media programs. Scanners were available in 71.2 to 74.3 percent of the programs and data projectors in 76.2 to 81.9 percent of the programs. Between 76.0 and 82.0 percent of the library media programs also had video and still digital cameras. PDAs were available in about ten percent of the programs.

Table VII.1. Percent of Library Media Programs with Technology

Equipment Located in or Under Library Media Program Supervision	Elementary Schools (505)	Middle/Junior High Schools (250)	High Schools (288)
	%	%	%
Computers	98.0%	98.0%	99.3%
Laptops	58.4%	66.8%	62.5%
Scanners	72.1%	71.2%	74.3%
Printers	94.1%	96.0%	98.6%
Computers and laptops with accommodations for students with disabilities	30.3%	38.4%	36.1%
Data projectors (LCDs)	76.2%	81.6%	80.9%
DVD recorders/players	72.7%	82.4%	85.4%
VCR recorders/players	91.9%	89.6%	93.4%
Televisions	92.3%	90.8%	93.7%
Digital cameras	82.0%	77.2%	76.4%
Video cameras	81.4%	78.8%	76.0%
PDAs including Palm Pilots, Pocket PC, iPods	9.9%	11.6%	11.5%

On average, elementary school library media programs had 26 computers in the library media center or under its supervision. Middle/Junior high library media programs had 34 computers, on average and high school library media programs had 35 computers. On average, library media programs had 14 to 16 laptops, three to four printers, one scanner, and three digital cameras. The average number of data projectors in library media programs increased by school level from an average of 1.70 in elementary programs to 3.00 in high school programs.

Table VII.2. Library Media Program Technology

Equipment Located in or Under Library Media Program Supervision	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Mean	Range	Mean	Range	Mean	Range
Computers	26.16	0-157	34.36	3-200	34.70	1-320
Laptops	14.49	0-126	15.70	0-252	9.58	0-136
Scanners	1.02	0-6	1.42	0-14	1.30	0-10
Printers	3.92	0-51	3.91	0-50	3.25	1-41
Computers and laptops with accommodations for students with disabilities	2.12	0-126	6.91	0-577	4.93	0-116
Data projectors (LCDs)	1.70	0-24	2.71	0-22	3.00	0-38
DVD recorders/players	2.15	0-31	4.09	0-90	4.73	0-55
VCR recorders/players	7.92	0-60	11.41	0-90	13.47	0-170
Televisions	8.15	0-55	11.34	0-90	13.95	0-170
Digital cameras	3.05	0-25	3.01	0-18	3.13	0-28
Video cameras	1.63	0-9	2.45	0-18	3.13	0-28
PDAs including Palm Pilots, Pocket PC, iPods	0.34	0-34	0.50	0-30	0.50	0-36

Between 81.1 and 86.5 percent of the library media programs reported that their schools' classroom computers can access networked library media program resources and the automated library catalog. This capability was also available through 51.1 to 60.0 percent of school-wide laptops.

Table VII.3. Percent of School Computers That Can Access Networked Library Resources

Percent of School Computers That Can Access Networked Library Resources	Elementary Schools (505)	Middle/Junior High Schools (250)	High Schools (288)
	%	%	%
Computers	81.1%	86.0%	86.5%
Laptops	51.1%	60.0%	58.3%

On average, elementary schools had a total of 57 computers that could access library media program resources outside of the school library media center. Middle/Junior high school library media program resources could be accessed by an average of 127 computers and high school library media program resources could be accessed by an average of 228 school computers. The average number of laptops that could access networked library media program resources ranged from 10.5 at the elementary level to 21.67 at the high school level.

Table VII.4. School Computers Accessing Networked Library Resources

Mean Number of School Computers from which Library Resources May Be Accessed	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Mean	Range	Mean	Range	Mean	Range
Computers	56.70	0-248	126.96	0-450	228.69	0-4,351
Laptops	10.51	0-162	18.13	0-175	21.67	0-230

The computer lab and the library media center constitute the hub of technology in Wisconsin schools. In addition to a library media center, the schools had between 1.49 and 5.22 computer labs, on average. On average, schools had between 35 and 128 total computers in these labs. Mobile labs were less prevalent.

Table VII.5. Computers in Classrooms and Labs

Mean Number of Computers in Classrooms and Labs	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Mean	Range	Mean	Range	Mean	Range
Number of computers and laptops in typical classroom	2.43	0-9	2.04	0-14	1.76	0-30
Number of Internet connected computers and laptops in a typical classroom	2.20	0-9	1.98	0-14	1.70	0-30
Number of computer labs in school	1.49	0-7	3.26	0-18	5.22	0-20
Number of mobile labs	0.39	0-6	0.63	0-7	0.58	0-6
Number of computers and laptops in labs	35.12	0-141	82.70	0-420	127.82	0-885

More than 60 percent of the high schools (178) had distance learning classrooms. Only six percent of the middle schools and less than two percent of elementary schools had distance learning capabilities.

Table VII.6. Distance Learning

Distance Learning	Elementary Schools (505)	Middle/Junior High Schools (250)	High Schools (288)
	%	%	%
Have a distance learning classroom	1.8%	6.0%	61.8%
Have a mobile distance learning system	1.0%	3.6%	4.5%

VIII. LIBRARY MEDIA CENTER FACILITIES AND USE

The Wisconsin *Information & Technology: A Collaborative Planning Guide for Library Media and Technology* sets forth library media center design and size specifications. It suggests that the library media center requires approximately 8-9 square feet per student to accommodate schools with student populations ranging from 450 to 1,500 students. As shown in Table VIII.1 below, elementary media library centers were, on average 2,285 square feet and could seat about 49 students. Middle school library media centers were on average 3,693 square feet and could seat 72 students. High school library media centers were 5,152 square feet and could seat, on average 82 students.

Table VIII.1. Library Media Center Size and Seating Capacity

LMC Size	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Mean	Range	Mean	Range	Mean	Range
Size in square feet	2,285	50-9,000	3,693	28-12,000	5,152	140-23,635
Seating capacity	48.91	2-360	72.18	15-220	81.68	24-246

Most of the library media centers at all three school/grade levels were able to accommodate a full class of students at one time. However, only 70.9 percent of the elementary library media centers were able to support peripheral activities while they had a full class of students in the center. Between 86.8 and 88.9 of the library media centers at secondary schools were able to support more than one class of students at the same time.

Table VIII.2. Library Media Center Size

LMC Size	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Number	Percent	Number	Percent	Number	Percent
Can accommodate a full class of students	484	95.8%	245	98.0%	286	99.3%
Can accommodate classes and other activities together	358	70.9%	217	86.8%	256	88.9%

Wisconsin's *Information & Technology: A Collaborative Planning Guide for Library Media and Technology* does not specify hours of library media center operation. Elementary library media centers were open, on average, 34.03 hours a week during school hours; middle school library media centers were open 36.26 hours; and high school library media centers were open 37.55 hours a week during school hours. A small percentage of the library media centers also reported extended service hours. About 15 percent of elementary library media centers were open before and after the school day. On average, these elementary school library media centers were open for a total of 2.09 hours a week before the school day and a total of 2.04 hours at the end of the school day per week. Between 8.4 and 16 percent of the middle/junior high school library media

centers indicated that they offered extended hours of operation. On average, they were open for 1.88 hours per week before and 2.60 hours after the school day per week. Between 10.1 and 28.1 high school library media centers provided extended hours and they were open for an average of 2.30 hours per week before the school day and 3.73 hours per week at the end of the school day.

Table VIII.3. Library Media Program Hours Per Week

Hours of Operation Per Week	Elementary Schools (505)		Middle/Junior High Schools (250)		High Schools (288)	
	Mean Hours	% of Library Media Programs	Mean Hours	% of Library Media Programs	Mean Hours	% of Library Media Programs
Mean hours library is open per week during school hours	34.03	100.0%	36.26	99.6%	37.55	100.0%
Mean hours library is open per week before school hours	2.09	14.6%	1.88	8.4%	2.30	10.1%
Mean hours library is open per week after school hours	2.04	15.0%	2.60	16.0%	3.73	28.1%

The elementary school library media centers’ operating hours per week were most strongly associated with their operating budget per student, staffing resources and size and variety of print and electronic collection. Elementary school library media centers with higher operating expenditures per student were more likely to be open more hours per week. Library media programs with larger print and electronic collections were also more likely to be open more hours per week.

Table VIII.4. Elementary School Library Media Program Hours Correlations

Correlation of Library Media Program Hours with:	Pearson Correlation		
	Correlation (r)	Probability (p)	Number (n)
Number of library media specialists per 100 students	.940	.000	486
Number of library media aides per 100 students	.278	.000	486
Total number of library media program staff per 100 students	.776	.000	486
Number of library media specialist hours per 100 students	.857	.000	486
Number of library media aides hours per 100 students	.281	.000	486
Total number of library media program staff hours per 100 students	.884	.000	486
Number of books per 100 students	.217	.000	479
Current subscriptions of periodicals, newspapers, magazines journals per 100 students	.273	.000	480
Electronic subscriptions per 100 students	.595	.000	476
Video/DVD materials per student	.354	.000	472
Computer software packages per 100 students	.776	.000	470
Library’s operating expenditures per student	.862	.000	486

At the middle/junior high school level, library media programs that operated more hours a week per 100 students were characterized by larger staffing resources and larger print and audio collections per student. These library media programs also tended to have larger operating budgets per student.

Table VIII.5. Middle/Junior High School Library Media Program Hours Correlations

Correlation of Library Media Program Hours with:	Pearson Correlation		
	Correlation (r)	Probability (p)	Number (n)
Number of library media specialists per 100 students	.759	.000	239
Number of library media aides per 100 students	.566	.000	239
Total number of library media program staff per 100 students	.761	.000	239
Number of library media specialist hours per 100 students	.424	.000	239
Number of library media aides hours per 100 students	.548	.000	239
Total number of library media program staff hours per 100 students	.670	.000	239
Number of books per 100 students	.375	.000	236
Audio materials per student	.305	.000	231
Library's operating expenditures per student	.422	.000	239

High school library media programs with longer service hours per 100 students were more likely to have larger staffing resources and larger print and electronic collections per student.

Table VIII.6. High School Library Media Program Hours Correlations

Correlation of Library Media Program Hours with:	Pearson Correlation		
	Correlation (r)	Probability (p)	Number (n)
Number of library media specialists per 100 students	.999	.000	281
Number of library media aides per 100 students	.998	.000	281
Total number of library media program staff per 100 students	.999	.000	281
Number of library media specialist hours per 100 students	.996	.000	281
Number of library media aides hours per 100 students	.998	.000	281
Total number of library media program staff hours per 100 students	.999	.000	281
Number of books per 100 students	.999	.000	279
Current print subscriptions to periodicals, newspapers, magazines and journals per 100 students	.990	.000	280
Electronic subscriptions per 100 students	.996	.000	276
Audio materials per student	.940	.000	274
Video/DVD materials per student	.995	.000	276
Computer software packages per 100 students	.998	.000	281
Library's operating expenditures per student	.973	.000	281

Data reported by library media programs points to a heavy use of the library media center by individuals and classes. Elementary library media specialists reported an average of 177 scheduled and unscheduled visits per week by individuals and classes. Middle school library media specialists reported an average of 430 such visits and high school media specialists reported more than 679 such visits. The number of classes visiting the library media centers in a typical week ranged up 85 and 100.

In a typical week, library media specialists reported an average of 64 contacts with individuals and classes for the purpose of information skills instruction at the elementary level. Middle school library media specialists reported an average of 117 contacts and high school library media specialists reported an average of 100 contacts. The average number of visits by classes for information skills instruction ranged from 60 to 100. Library media centers data also showed heavy use of materials checked out or used in the center.

Inter-library loans constitute one means by which the school library media programs access information resources beyond the campus. Twenty-nine percent of elementary library media programs, 20 percent of middle school programs and 16 percent of high school library media programs loaned materials to other libraries in or outside the district. Thirteen percent of elementary and 20 percent of middle/junior high and high school library media programs reported borrowing materials from other library media programs in or outside the district.

Table VIII.7. Library Media Center Use Per Week

Use per Week	Elementary Schools		Middle/Junior High Schools		High Schools	
	Mean	Range	Mean	Range	Mean	Range
Number of scheduled and unscheduled visits to library media center by individuals	153.80	0-3,321	404.10	0-5,000	654.55	0-7,500
Number of scheduled and unscheduled visits to library media center by classes or other groups	22.98	0-85	25.74	1-98	24.91	0-100
Number of scheduled and unscheduled information skills instruction contacts with individuals	51.57	0-3,520	105.56	0-1,400	90.88	0-1,733
Number of scheduled and unscheduled information skills instruction contacts with classes or other groups	12.19	0-80	11.86	0-60	9.69	0-100
Total number of books and other materials checked out during the most recent full week	729.38	18-3,400	476.71	5-4,805	229.98	5-1,804
Number of materials used in the library media center	360.90	0-8,000	347.53	1-4,000	227.42	1-3,158
Number of loans by this library media center to other library media programs in or outside district	7.45	0-73	4.93	0-50	4.13	0-65
Number of loans requested by this library media center from other library media programs in or outside the district	6.11	0-80	4.92	0-50	5.02	0-41

At all grade/school levels, library media program use was significantly correlated with number of staff and staff hours. Library media programs with more staff resources and hours per 100 students exhibited greater use as reflected in the number of visits to the library media center, number of information skills instruction contacts, the volume of materials used and checked out, and the loans to and from other library media programs. The correlations between library media program staff and staff hours and library media center use was weakest at the middle/junior high level.

Table VIII.8. Library Media Program Staff and Library Media Center Use

Correlation of Library Media Program Staff Per Week with:	Elementary Schools	Middle/Junior High Schools	High Schools
	Pearson Correlation (r) Probability (p) Number (n)	Pearson Correlation (r) Probability (p) Number (n)	Pearson Correlation (r) Probability (p) Number (n)
Library Media Specialists per 100 Students with:			
Scheduled and unscheduled visits to library media center by individuals per 100 students	.254 .000 496	*	.994 .000 277
Scheduled and unscheduled visits to library media center by classes per 100 students	.776 .000 500	.330 .000 243	.994 .000 281
Number of information skills instruction contacts with individuals per 100 students	*	*	.946 .000 274
Number of information skills instruction contacts with classes or groups per 100 students	.751 .000 494	.168 .009 242	.993 .000 274
Number of materials checked out per 100 students	.495 .000 491	.183 .004 241	.994 .000 277
Number of materials used in the library media center per 100 students	.495 .000 491	.183 .004 241	.994 .000 277
Number of items loaned to other library media programs per 100 students	.200 .000 492	*	.989 .000 273
Number of items requested from other library media programs per 100 students	.226 .000 493	*	.993 .000 272
Library Media Specialist Hours per 100 Students with:			
Scheduled and unscheduled visits to library media center by individuals per 100 students	.191 .000 496	*	.993 .000 277
Scheduled and unscheduled visits to library media center by classes per 100 students	.758 .000 500	.250 .000 243	.990 .000 281

Number of information skills instruction contacts with individuals per 100 students	*	*	.944 .000 274
Number of information skills instruction contacts with classes or groups per 100 students	.843 .000 494	.207 .001 242	.990 .000 274
Number of materials checked out per 100 students	.554 .000 491	*	.991 .000 277
Number of materials used in the library media center per 100 students	.554 .000 491	*	.991 .000 277
Number of items loaned to other library media programs per 100 students	.211 .000 492	*	.986 .000 273
Number of items requested from other library media programs per 100 students	.226 .000 493	*	.990 .000 272
Library Media Program Staff per 100 Students:			
Scheduled and unscheduled visits to library media center by individuals per 100 students	.321 .000 496	*	.997 .000 277
Scheduled and unscheduled visits to library media center by classes per 100 students	.624 .000 500	.341 .000 243	.997 .000 281
Number of information skills instruction contacts with individuals per 100 students	*	*	.948 .000 274
Number of information skills instruction contacts with classes or groups per 100 students	.499 .000 494	.129 .045 242	.996 .000 274
Number of materials checked out per 100 students	.334 .000 491	.179 .005 241	.998 .000 277
Number of materials used in the library media center per 100 students	.334 .000 491	.179 .005 241	.998 .000 277
Number of items loaned to other library media programs per 100 students	.154 .001 492	*	.993 .001 273
Number of items requested from other library media programs per 100 students	.169 .000 493	*	.997 .000 272
Library Media Program Staff Hours per 100 Students with:			
Scheduled and unscheduled visits to library media center by individuals per 100 students	.300 .000 496	.228 .000 242	.998 .000 277
Scheduled and unscheduled visits to	.755	.383	.998

library media center by classes per 100 students	.000 500	.000 243	.000 281
Number of information skills instruction contacts with individuals per 100 students	*	*	.948 .000 274
Number of information skills instruction contacts with classes or groups per 100 students	.737 .000 494	.167 .009 242	.997 .000 274
Number of materials checked out per 100 students	.487 .000 491	.163 .011 241	.998 .000 277
Number of materials used in the library media center per 100 students	.487 .000 491	.163 .011 241	.998 .000 277
Number of items loaned to other library media programs per 100 students	.189 .001 492	*	.993 .001 273
Number of items requested from other library media programs per 100 students	.217 .000 493	*	.998 .000 272

* Correlations were not statistically significant.

A flexible schedule for visiting the library media center refers to a schedule that allows visits for varying time periods according to need. Research has shown that the availability of flexible scheduling promotes library media center use. As shown in Table VIII.9 below, flexible scheduling was more prevalent in secondary school library media centers than at the elementary level. On average, only about 16 percent of class visits to the elementary library media center were flexibly scheduled. The percentage of flexibly scheduled visits increased to about 50 percent at the middle/junior high school level and to more than 60 percent at the high school level.

Table VIII.9. Flexibly and Regularly Scheduled Class Visits to Library Media Center

Library Media Center Visits	Elementary Schools (505)	Middle/Junior High Schools (250)	High Schools (288)
Percentage of Class Visits			
Flexibly scheduled	15.78%	48.52%	61.43%
Regularly scheduled	57.29%	32.27%	21.55%

IX. RELATIONSHIP BETWEEN MEDIA LIBRARY PROGRAM RESOURCES AND ACTIVITIES AND STUDENT PERFORMANCE

The data compiled in this portion of the Wisconsin Study consisted of more than 100 library media program and school variables. The first step in examining the relationship between library media program resources and activities and students' performance as measured by the percent of students who scored Proficient and Advanced on WKCE reading and language arts and on ACT reading and English, was to identify the variables that best represented the library media programs' resources and activities. These variables (predictors) were identified by computing bivariate correlation coefficients. As part of the analysis, library media program variables were grouped into five areas:

- Library media program development
- Leadership activities
- Instructional/Collaboration activities
- Library media program technology

The next step was to move from single library media program and school variables to the creation of groupings (factors) in order to examine the relationship among these variables. This was achieved by using factor analysis.

The third step in the analysis was to examine the effect of library media program variables on performance by measuring the degree to which WKCE performance can be explained by library media program variables and identify those variables that contribute most to WKCE performance.

1. Library Media Program Development

Across all grade/school levels, variables considered key program development indicators include the library media program's staffing resources (number of staff and staff hours), number of hours the library media center is open to the students, the program's operational budget, and the library media program collection of print and electronic resources.

1.1 Elementary School Library Media Programs

The survey collected data on a wide range of library media program infrastructure elements. Among these elements, seven variables were identified as having positive and significant correlations for elementary school library media programs. The bivariate correlations between these variables were typically moderate to high. These variables, all expressed as ratios, include:

- Number of library media program staff per 100 students
- Total library media program staff hours per 100 students
- Library media center hours of operation per 100 students
- Number of current subscriptions to periodicals, newspapers, magazines and journals per 100 students
- Number of electronic subscriptions per 100 students
- Number of computer software packages per 100 students
- Total library media program operating expenditures per student

**Table IX.1 - Bivariate Correlation Coefficients for Library Media Program
Development Variables for Elementary Schools**

Pearson Correlation (r) Significance (p) Number (n)	Staff Per 100 Students	Staff Hours Per 100 Students	Hours Open Per 100 Students	Magazine, Newspaper Subscriptions Per 100 Students	Electronic Subscriptions per 100 Students	Computer Software Packages per 100 Students	Operating Expenditures Per Student
Staff per 100 students	1.000 ---						
Staff hours per 100 students	.747 .000 504	1.000 ----					
Hours of operation per 100 students	.776 .000 486	.884 .000 486	1.000 ----				
Magazine and newspaper subscriptions per 100 students	.241 .000 497	.284 .000 497	.273 .000 480	1.000 ----			
Electronic subscriptions per 100 students	.456 .999 493	.550 .000 493	.595 .000 476	.240 .000 491	1.000 ---		
Computer Software packages per 100 students	.498 .000 481	.727 .000 481	.776 .000 470	.261 .000 478	.546 .000 479	1.000 ---	
Operating expenditures per student	.554 .000 504	.798 .000 504	.862 .000 486	.277 .000 497	.577 .000 493	.852 .000 481	1.000 ---

1.2 Middle/Junior High School Library Media Programs

At the middle/junior high school level, program development variables that correlated significantly included:

- Number of library media program staff per 100 students

- Total staff hours per 100 students
- Library media center hours of operation per 100 students
- Number of library media program’s print volumes per student
- Total library media program operating expenditures per student

The bivariate correlation coefficients between the program development variables were moderate to high.

Table IX.2. Bivariate Correlation Coefficients for Library Program Development Variables for Middle/Junior High Schools

Pearson Correlation (r)	Staff Per 100 Students	Staff Hours Per 100 Students	Hours of Operation Per 100 Students	Print Volumes Per Student	Operating Expenditures Per Student
Staff per 100 students	1.000 ---				
Staff hours per 100 students	.779 .000 249	1.000 ----			
Hours of operation per 100 students	.761 .000 239	.670 .000 239	1.000 ----		
Print volumes per student	.358 .000 245	.325 .000 245	.375 .000 236	1.000 ----	
Operating expenditures per student	.445 .000 249	.460 .000 249	.422 .000 239	.309 .000 245	1.000 ---

1.3 High School Library Media Programs

At the high school level, nine program development variables were identified as having positive, high, and significant correlations. These included:

- Number of library media program staff per 100 students
- Total library media program staff hours per 100 students
- Total library media center hours of operation per 100 students
- Number of print volumes per student

- Number of current subscriptions to periodicals, newspapers, magazines and journals per 100 students
- Number of electronic subscriptions per 100 students
- Number of audio materials per student
- Number of video/DVD materials per 100 students
- Total library media program operating expenditures per student

The variables representing library media program collection play a significant role at the high school level. The five library media program collection variables constitute an important part of the high school library infrastructure. These represent both the range and variety of print and electronic materials in the collection and the degree to which the collection is current. At the high school level, the size of the print collection, the magazine and newspaper collection in combination with audio, video/DVD materials and the electronic subscriptions appear to be significant indicators of the library media program development.

Table IX.3. Bivariate Correlation Coefficients for Library Program Development Variables for High Schools

Pearson Correlation (r) Significance (p) Number (n)	Staff Per 100 Students	Staff Hours Per 100 Students	Hours Open to Students Per 100 Students	Print Volumes Per Student	Magazine and Newspaper Subscriptions Per 100 Students	e-subscriptions per 100 Students	Audio Materials per Student	Video/DVD Materials Per 100 Students	Operating Expenditures Per Student
Staff per 100 students	1.000 ----								
Staff hours per 100 students	.999 .000 287	1.000 ----							
Hours open to students per 100 students	.999 .000 281	.999 .000 281	1.000 ----						
Print volumes per student	.999 .000 285	.999 .000 285	.999 .000 279	1.000 ----					
Magazine and newspaper subscriptions per 100 students	.990 .000 286	.991 .000 286	.990 .000 280	.990 .000 285	1.000 ---				
e-subscriptions per 100 students	.997 .000 282	.998 .000 282	.996 .000 276	.997 .000 281	.990 .000 282	1.000 ---			
Audio materials per student	.940 .000 278	.941 .000 278	.940 .000 274	.942 .000 277	.934 .000 278	.937 .000 275	1.000 ---		
Video/DVD materials per 100 students	.996 .000 281	.996 .000 281	.995 .000 276	.996 .000 280	.988 .000 281	.996 .000 277	.945 .000 276	1.000 ---	

Operating expenditures per student	.998	.998	.998	.998	.990	.995	.942	.994	1.000
	.000	.000	.000	.000	.000	.000	.000	.000	----
	287	287	281	285	286	282	278	281	

2. Leadership: Library Media Program Staff Involvement with Administrators, Teachers and Colleagues

The survey provided a list of professional activities that library media specialists and their staff are expected to perform and asked library media specialists to indicate how many hours per week they and their support staff typically spend on each activity. The data revealed two groups of correlated activities. One set of activities related to library media program staff involvement with a range of school professionals and colleagues through meetings and committees. These activities represent the extent to which library media specialists play an integral role in their school and profession. Previous studies defined these activities as leadership activities.

2.1 Elementary School Library Media Programs

The leadership activities of library media specialists that were positively and significantly correlated at the elementary school level included:

- Meeting with the principal and other school and district administrators
- Serving on building or district curriculum planning and management committees
- Attending faculty and staff meetings and professional development in-services
- Meeting with library media colleagues in the district

Table IX.4. Bivariate Correlation Coefficients for Time Spent on Leadership Activities by Elementary School Library Media Program Staff

Pearson Correlation (r) Significance (p) Number (n)	Meeting with Principal and School and District Administrators	Serving on School/District Planning and Management Committees	Meeting with Library Media Program Staff	Attending Faculty Meetings and In-services
Meeting with principal and school/district administrators	1.000 ---			
Serving on school/district planning and management committees	.369 .000 505	1.000 ---		
Meeting with library media program staff	.267 .000 505	.208 .000 505	1.000 ---	
Attending faculty meetings and in-services	.197 .000 505	.181 .000 505	.126 .005 505	1.000 ---

2.2 Middle/Junior High School Library Media Programs

At the middle/junior high school level, the leadership component of library media program staff included three variables:

- Meeting with the principal and other school/district administrators
- Attending faculty and staff meetings and professional development in-services
- Serving on the school/district curriculum planning and management committees

The attendance of library media specialists at faculty and staff meetings and in-services and meeting with the principal and other school and district administrators demonstrates that administrators and teachers honor the instructional role of the library media specialist. The professional status of the library media specialist is further recognized by membership on school and district curriculum planning and management committees.

Table IX.5. Bivariate Correlation Coefficients for Time Spent on Leadership Activities by Middle/Junior High School Library Media Program Staff

Pearson Correlation (r) Significance (p) Number (n)	Meeting with Principal and Other School/District Administrators	Serving on School/District Planning and Management Committees	Attending Faculty Meetings and In-services
Meeting with principal and other school/district administrators	1.000 ----		
Serving on school/district planning and management committees	.314 .000 250	1.000 ----	
Attending faculty meetings and in-services	.267 .000 250	.216 .001 250	1.000 ----

2.3 High School Library Media Program

The leadership activities pursued by library media program staff at the high school level were similar to the activities at the elementary and middle/junior high school levels but yielded slightly higher correlation coefficients. The leadership variables identified as correlated included:

- Attending faculty and staff meetings and professional development in-services
- Meeting with the principal and other school and district administrators
- Meeting with colleagues in the district

- Serving on the school or district curriculum planning and management committees

The correlation between library media specialists meeting with the principal and other school and district administrators and serving on planning and management committees was slightly higher at the high school level than at the elementary and middle/junior high school levels. The correlation between meetings with the principal and meeting with colleagues was also higher, pointing to the recognition by school administration of the importance of having the high school library media specialists maintain professional contacts.

Table IX.6. Bivariate Correlation Coefficients for Time Spent on Leadership Activities by High School Library Media Program Staff

Pearson Correlation (r) Significance (p) Number (n)	Meeting with Principal and Other School/District Administrators	Meeting with Library Media Program Staff in District	Serving on School/District Planning and Management Committees	Attending Faculty and Staff Meetings and In-services
Meeting with principal and other school/district administrators	1.000 ----			
Meeting with library media program staff in district	.333 .000 288	1.000 ----		
Serving on school/district planning and management committees	.491 .000 288	.186 .001 288	1.000 ----	
Attending faculty and staff meetings and in-services	.240 .000 288	.158 .007 288	.289 .000 288	1.000 ----

3. Library Media Program Staff Teaching Activities: Collaboration

The second group of activities that emerged to correlate represents the collaboration of library media program staff with teachers. In this role, the library media specialist exercises different aspects of teaching, either targeted at or in collaboration with teachers and other school staff.

3.1 Elementary School Library Media Programs

Four variables describing instructional activities involving library media specialists emerged at the elementary school level. These activities involved the library media specialist in:

- Planning instructional units with teachers
- Teaching collaboratively with teachers
- Providing training to teachers
 - Assessing collaborative student projects

Table IX.7. Bivariate Correlation Coefficients for Percent of Time Spent on Collaborative Teaching Activities by Elementary School Library Media Program Staff

Pearson Correlation (r) Significance (p) Number (n)	Planning Instructional Units with Teachers	Teaching Cooperatively with Teachers	Providing Staff Development to Teachers	Assessing Collaborative Student Projects
Planning instructional units with teachers	1.000 ----			
Teaching collaboratively with teachers	.190 .000 505	1.000 ----		
Providing staff development to teachers	.191 .000 505	.137 .013 261	1.000 ----	
Assessing collaborative student projects	.143 .001 505	.260 .000 505	.178 .000 505	1.000 ----

3.2 Middle/Junior High School Library Media Programs

The collaborative role of the library media specialist with teachers also emerged at the middle/junior high school level. These activities involved the library media specialist or staff in:

- Planning instructional units with teachers
- Teaching collaboratively with teachers
- Providing training to teachers
- Identifying and selecting materials for instructional units developed by teachers.

The bivariate correlation coefficients between collaborative planning, teaching and staff development computed at the middle/junior high school level were higher than at the elementary school level, pointing to an increased importance of this role at the middle/junior high school level.

Table IX.8. Bivariate Correlation Coefficients for Percent of Time Spent on Collaborative Teaching Activities by Middle/Junior High School Library Media Program Staff

Pearson Correlation (r) Significance (p) Number (n)	Planning Instructional Units with Teachers	Teaching Cooperatively with Teachers	Providing Staff Development to Teachers	Identifying Materials for Instructional Units
Planning instructional units with teachers	1.000 ----			
Teaching collaboratively with teachers	.220 .000 250	1.000 ----		
Providing staff development to teachers	.330 .000 250	*	1.000 ----	
Identifying materials for instructional units	.186 .002 250	*	.124 .050 250	1.000 ----

* Correlation is not statistically significant.

3.3 High School Library Media Programs

At the high school level, six activities representing library media specialist collaboration with teachers were identified as significant. These included:

- Planning instructional units with teachers
- Teaching collaboratively with classroom teachers
- Assessing collaborative student projects
- Identifying and selecting materials for instructional units developed by teachers

- Providing training to teachers
- Providing information skills instruction to students

At the high school level, the instructional role of the library media specialist was expanded. In a teaching role, the high school library media specialist not only plans instructional units with teachers but also identifies materials for instruction. Furthermore, the high school library media specialist not only teaches collaboratively with teachers and trains them but also teaches information skills to students. The role of the library media specialist in teaching information skills has been expanded with the integration of technology and information processing into the school curriculum.

Table IX.9. Bivariate Correlation Coefficients for Percent of Time Spent on Collaborative Teaching Activities by High School Library Media Program Staff

Pearson Correlation (r) Significance (p) Number (n)	Planning Instructional Units with Teachers	Teaching Cooperatively with Teachers	Assessing Collaborative Student Projects	Providing Staff Development to Teachers	Identifying Materials for Instructional Units	Teaching Information Literacy to Students
Planning instructional units with teachers	1.000 ----					
Teaching collaboratively with teachers	.399 .001 288	1.000 ----				
Assessing collaborative student projects	.388 .000 288	.316 .000 288	1.000 ---			
Providing staff development to teachers	.282 .000 288	.217 .000 288	.163 .006 288	1.000 ----		
Identifying materials for instructional units	.304 .000 288	*	.117 .048 288	*	1.000 ----	
Teaching information literacy to students	*	.140 .018 288	*	.233 .000 288	.173 .003 288	1.000 ----

* Correlation is not statistically significant.

4. Library Media Center Technology

The introduction of technology into schools, typically through computer labs and library media centers, has made the library media specialist a key player on the technology team and in many cases a technology leader. Technology has expanded the physical boundaries of the library media center in two ways. The use of online resources from the

library media program enables teachers and students to access state, national, and world-wide resources. The distribution of technology throughout the school, in classrooms and technology labs, provides students and teachers with the capability to access library media program resources from anywhere in the school, including the classroom, as well as from home. Access to networked resources frees teachers, students, staff and administrators from the need to be at the same physical location (i.e. the library media center) in order to use library media program resources. The library media program's catalog and electronic resource collection can be accessed from multiple locations throughout the school, and in many schools, from computers outside the school.

The survey collected data on library media program technology resources -- resources located in the library media center, resources under library media program supervision, and those throughout the school with access to the library media program's networked resources.

Using the ratio of "per 100 students," eight library media program technology variables were identified as being positively and highly correlated for elementary, middle/junior high, and high school library media programs. These included:

- Computers in or under library media program supervision
- Laptops in or under library media program supervision (including AlphaSmarts)
- Scanners in or under library media program supervision
- Printers in or under library media program supervision
- Data projectors in or under library media program supervision
- VCR recorders/players in or under library media program supervision
- Digital cameras in or under library media program supervision
- School-wide computers from which networked library media program resources can be accessed

At the secondary level, significant correlations were also computed for DVD recorders/players in or under library media program supervision and video cameras in or under library media program supervision.

The bivariate correlation coefficients of these variables increased with grade/school level, as shown in Tables IX.10, IX.11 and IX.12.

Table IX.10. Bivariate Correlation Coefficients for Computers In or Under Library Media Program Supervision for Elementary School Library Media Programs

Pearson Correlation (r) Significance (p) Number (n)	LMC Computers Per 100 Students	Laptops Per 100 Students	Scanners Per 100 Students	Printers Per 100 Students	Data Projectors Per 100 Students	VCR/DVD Recorders/ Players Per 100 Students	Digital Cameras Per 100 Students	School Computers Accessing LMP Resources
Library media center computers per 100 students	1.000 ----							
Laptops per 100 students	.283 .000 468	1.000 ----						
Scanners per 100 students	.837 .000 473	.163 .000 459	1.000 ---					
Printers per 100 students	.702 .000 488	.321 .000 463	.649 .000 470	1.000 ----				
Data projectors per 100 students	.612 .000 479	.290 .000 461	.630 .000 468	.470 .000 473	1.000 ----			
VCR/DVD recorders/players per 100 students	.150 .001 490	.214 .000 465	*	.270 .000 484	.267 .000 477	1.000 ----		
Digital cameras per 100 students	.695 .000 484	.154 .001 466	.781 .000 471	.523 .000 478	.655 .000 475	.166 .000 481	1.000 ----	
School computers accessing networked LMP resources	.896 .000 479	.234 .000 453	.838 .000 457	.660 .000 471	.576 .000 461	* *	* *	1.000 ----

* Correlation is not statistically significant.

Table IX.11. Bivariate Correlation Coefficients for Computers In or Under Library Media Program Supervision for Middle/Junior High School Library Media Programs

Pearson Correlation (r) Significance (p) Number (n)	LMC Computers Per 100 Students	Laptops Per 100 Students	Scanners Per 100 Students	Printers Per 100 Students	Data Projectors Per 100 Students	DVD Recorders/ Players Per 100 Students	VCR Recorders/ Players Per 100 Students	Digital Cameras Per 100 Students	Video Cameras Per 100 Students	School Computers Accessing LMP Resources
Library media center computers per 100 students	1.000 ----									
Laptops per 100 students	.253 .000 237	1.000 ----								
Scanners per 100 students	.418 .000 238	*	1.000 ---							
Printers per 100 students	.514 .000 242	.128 .050 236	.592 .000 238	1.000 ----						
Data projectors per 100 students	.460 .000 239	.357 .000 235	.314 .000 237	.307 .000 239	1.000 ----					
DVD recorders/players per 100 students	.143 .027 241	.256 .000 235	*	*	.260 .000 239	1.000 ----				
VCR recorders/players per 100 students	.197 .002 238	.157 .016 232	.133 .042 234	.223 .001 237	.392 .000 236	.585 .000 239	1.000 ----			

Digital cameras per 100 students	.258 .000 238	.314 .000 234	.290 .000 235	.178 .006 237	.534 .000 237	.208 .001 238	.309 .000 235	1.000 ----		
Video cameras per 100 students	.143 .026 241	.219 .001 236	.142 .029 238	.126 .052 240	.436 .000 240	.192 .003 241	.355 .000 238	.511 .000 239	1.000 ----	
School computers accessing networked LMP resources	.448 .000 225	.233 .001 219	.223 .001 219	.247 .000 222	.270 .000 220	*	*	.236 .000 219	.375 .000 222	1.000 ----

* Correlation is not statistically significant.

Table IX.12. Bivariate Correlation Coefficients for Computers In or Under Library Media Program Supervision for High School Library Media Programs

Pearson Correlation (r) Significance (p) Number (n)	LMC Computers Per 100 Students	Laptops Per 100 Students	Scanners Per 100 Students	Printers Per 100 Students	Data Projectors Per 100 Students	DVD Recorders/ Players Per 100 Students	VCR Recorders/ Players Per 100 Students	Digital Cameras Per 100 Students	Video Cameras Per 100 Students	School Computers Accessing LMP Resources
Library media center computers per 100 students	1.000 ----									
Laptops per 100 students	.454 .000 274	1.000 ----								
Scanners per 100 students	.997 .000 275	.464 .000 270	1.000 ---							
Printers per 100 students	.996 .000 283	.455 .000 272	.996 .000 273	1.000 ----						
Data projectors per 100 students	.987 .000 280	.476 .000 273	.989 .000 274	.985 .000 278	1.000 ----					
DVD recorders/players per 100 students	.940 .000 281	.460 .000 271	.944 .000 273	.949 .000 279	.947 .000 278	1.000 ----				
VCR recorders/players per 100 students	.793 .000 280	.414 .000 270	.808 .000 271	.803 .000 278	.827 .000 277	.879 .000 280	1.000 ----			
Digital cameras per	.999 .000	.455 .000	.997 .000	.996 .000	.985 .000	.941 .000	.793 .000	1.000 ----		

100 students	276	270	271	274	275	276	276			
Video cameras per 100 students	.997 .000 278	.463 .000 270	.996 .000 272	.994 .000 276	.986 .000 276	.947 .000 279	.808 .000 277	.997 .000 276	1.000 ----	
School computers accessing networked LMP resources	.999 .000 258	.453 .000 249	.997 .000 250	.996 .000 256	.987 .000 254	.943 .000 254	.805 .000 253	.999 .000 212	.996 .000 212	1.000 ----

5. Association Between Library Media Program and School Variables: Factor Analysis

While bivariate correlation identifies the strength of association between two variables, factor analysis expands the relationship beyond just two variables. The objective of factor analysis is to examine the relationship among library media program variables and school variables and create groupings of variables (factors). Generally, a procedure known as a varimax rotation is performed as part of the factor analysis for the purpose of accentuating these factor loadings. This procedure makes it easier to determine which variables should be grouped together. Each grouping consists of variables that are most strongly associated with each other. The groupings created by a factor analysis and the strength of association among variables in a grouping are presented in a matrix that shows the correlation (factor loading) of each variable with that factor. Factor loadings of +/- .600 or higher are considered in describing and interpreting the groupings. The groupings created by factor analysis are expected to make sense as a group. However, it is possible for variables to be highly correlated with one another without there being an obvious explanation for that association.

5.1 Elementary School Factor Analysis

Elementary school library media program variables and school variables were entered into a factor analysis in order to identify variables that correlated highly with one another, forming variable groupings (factors). The factor analysis resulted in nine factors that explained 65 percent of the variance in the elementary school library media program and school data. Table IX.13 lists the variables associated with the nine factors and the strength of association of each variable with its respective factor grouping.

The following nine factors were formed for elementary school library media program and school variables:

- **Factor 1: Staffing**

- Number of library media specialists per 100 students
- Number of library media specialist hours per 100 students
- Number of paid staff per 100 students
- Number of paid staff hours per 100 students

- **Factor 2: Print, Technology and Financial Resources**

- Number of print volumes per student
- Number of current print subscriptions per 100 students
- Number of materials checked out per 100 students
- Number of computers in computer labs per 100 students
- Total of program operating expenditures per students
- Number of meetings with principal and colleagues and attendance at faculty meetings and curriculum planning and management committee meetings

- **Factor 3: School Variables**

Percent English proficient students

Percent White students

Percent of students not eligible for subsidized lunch

Student-teacher ratio

- **Factor 4: Instruction and Library Media Center Use**

Number of scheduled and unscheduled individual visits per 100 students

Number of scheduled and unscheduled group visits per 100 students

Number of hours spent instructing, working and assisting students

Number of information skills instruction contacts with individuals per 100 students

Number of information skills instruction contacts with groups per 100 students

- **Factor 5: Collaboration with Teachers and Access to Technology**

Total time spent planning with, collaboratively teaching with and assisting teachers

Number of computers in library media center per 100 students

Number of electronic subscriptions per 100 students

- **Factor 6: Hours of Operation**

Hours of operation before and after school

- **Factor 7: Volunteers and Access**

Number of volunteer hours per 100 students

Number of school computers with access to online library media center resources

- **Factor 8: Teacher Experience**

Percent of teachers with five or more years of experience

- **Factor 9: Current Collection**

Average age of nonfiction collection

Table IX.13. Elementary School Library Media Program Factor Analysis

Elementary School Library Media Program Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
Library media specialists per 100 students	.717								
Library media specialist hours per 100 students	.809								
Library media program paid staff per 100 students	.649								
Library media program paid staff hours per 100 students	.844								
Library media program volunteer hours per 100 students							.738		
Hours open before and after school						-.679			
Planning, collaborative teaching and assisting teachers					.666				
Instructing, working with and assisting students				.499*					
Meetings with principal, colleagues, attending faculty meetings and planning and management committee meetings		.453*							
Scheduled and unscheduled visits by individuals per 100 students				.458*					
Scheduled and unscheduled visits by groups per 100 students				.475*					
Information skills instruction contacts with individuals per 100 students				.774					
Information skills instruction contacts with groups per 100 students				.662					
Materials checked out per 100 students		.529*							
Library media center computers per 100 students					.484*				
School computers with access to library							.574*		

media program online resources per 100 students									
Computers in computer labs per 100 students		.454*							
Print volumes per student		.481*							
Current print subscriptions to newspapers and magazines per 100 students		.702							
Number of electronic subscriptions per 100 students					.708				
Average age of nonfiction print collection									.789
Library media program operational expenditures per student		.757							
Percent of English proficient students			.873						
Percent of White students			.883						
Percent of students not eligible for free or reduced lunch			.814						
Student-teacher ratio			-.524*						
Percent of teachers with five or more years of experience								.718	

Rotation Method: Varimax and Kaiser Normalization

Rotation converged in 18 iterations.

** The highest factor loadings for these variables were lower than the +/- .600 cutoff point for inclusion in the groupings.*

5.2 Middle/Junior High School Factor Analysis

The factor analysis performed on middle/junior high school library media program and school variables resulted in 10 factors that explained 67 percent of the variance in the library media program and school data.

The following nine factors were formed for middle/junior high school library variables:

- **Factor 1: Library Media Program Staffing and Instructional Activities**

Number of library media specialists per 100 students
Number of library media specialist hours per 100 students
Number of library media paid staff per 100 students
Number of library media paid staff hours per 100 students
Hours spent in planning, collaborative teaching, working with and assisting teachers
Hours spent instructing, working with and assisting students

- **Factor 2: School Variables**

Percent English proficient students
Percent of White students
Percent not eligible for subsidized lunch
Student-teacher ratio

- **Factor 3: Library Media Center Resources**

Number of materials checked out per 100 students
Number of computers in computer labs per 100 students
Number of print volumes per student
Number of print subscriptions per 100 students
Total operational expenditures per student

- **Factor 4: Library Media Center Use**

Number of scheduled and unscheduled individual visits per 100 students
Number of scheduled and unscheduled group visits per 100 students
Number of information skills instruction contacts with individuals per 100 students

- **Factor 5: Access**

Number of hours of operation before and after school
Number of electronic subscriptions per 100 students

- **Factor 6: Technology**

Number of library media center computers per 100 students

Number of school computers with access to library media program online resources per 100 students

- **Factor 7: Volunteers**

Number of volunteer hours per 100 students

- **Factor 8: Leadership, collection Age and Teacher Experience**

Time spent in meetings with principals, colleagues, faculty and planning and management committees

Average age of non-fiction collection

Percent of teachers with five or more years of experience

- **Factor 9: Information Skills Instruction**

Number of information skills contacts with individuals per 100 students

- **Factor 10: Hours of Operation**

Number of hours of operation during school

Table IX.14. Middle/Junior High School Library Media Program Factor Analysis

Middle/Junior High School Library Media Program Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Library media specialists per 100 students	.754									
Library media specialist hours per 100 students	.682									
Library media program paid staff per 100 students	.790									
Library media program paid staff hours per 100 students	.855									
Library media program volunteer hours per 100 students							-.859*			
Library media center hours of operation during school										.785
Hours open before and after school						-.488*				
Planning, collaborative teaching and assisting teachers	.586*									
Instructing, working with and assisting students	.757									
Meetings with principal, colleagues, attending faculty meetings and planning and management committee meetings								-.438*		
Scheduled and unscheduled visits by individuals per 100 students				.728						
Scheduled and unscheduled visits by groups per 100 students				.603						
Information skills instruction contacts with individuals per 100 students				.798						
Information skills instruction contacts with groups per 100 students									.688	
Materials checked out per 100 students			.618							
Library media center computers per 100						-.482*				

students									
School computers with access to library media program online resources per 100 students						.696			
Computers in computer labs per 100 students			.577*						
Print volumes per student			.818						
Current print subscriptions to newspapers and magazines per 100 students			.425*						
Number of electronic subscriptions per 100 students					.754				
Average age of nonfiction print collection							.794		
Library media program operational expenditures per student			.467*						
Percent of English proficient students		.786							
Percent of White students		.884							
Percent of students not eligible for free or reduced lunch		.698							
Student-teacher ratio		-.557*							
Percent of teachers with five or more years of experience							.569*		

Rotation Method: *Varimax and Kaiser Normalization*

Rotation converged in 21 iterations.

* The highest factor loadings for these variables were lower than the +/- .600 cutoff point for inclusion in the groupings.

5.3 High School Factor Analysis

The factor analysis conducted with high school library media program and school variables yielded eight factors explaining 73 percent of the variance in the high school library media program and school data. The following eight factors were formed for high school library media program variables. Please note that Factor 1 accounted for 36.6 percent of the 72.8 percent variance explained.

- **Factor 1: Library Media Center Resources**

Number of library media specialists per 100 students
Number of library media specialist hours per 100 students
Number of library media paid staff per 100 students
Number of library media paid staff hours per 100 students
Number of volunteer hours per 100 students
Hours spent in planning, collaborative teaching and assisting teachers
Hours spent instructing, working with and assisting students
Number of scheduled and unscheduled individual visits per 100 students
Number of library media center computers per 100 students
Number of computers in computer labs per 100 students
Number of print volumes per student
Number of print subscriptions per 100 students
Number of electronic subscriptions per 100 students
Total Operating expenditures per student

- **Factor 2: School Variables**

Percent of students not eligible for subsidized lunch
Student-teacher ratio

- **Factor 3: Information Skills Instruction**

Number of information skills instruction contacts with individuals per 100 students
Number of information skills instruction contacts with groups per 100 students

Factor 4: School Variables

Percent of English proficient students
Percent of White students

- **Factor 5: Leadership and Access**

Number of hours open during school day
Number of hours spent in meetings with principals, colleagues, faculty and planning and management committees

- **Factor 6: Access to Library Media Program Resources**

School computers with access to library media program online resources per 100 students

- **Factor 7: Hours of Operation**

Number of hours of operation before and after school
Average age of nonfiction print collection

- **Factor 8: Teacher Experience**

Percent of teachers with five or more years of teaching experience

Table 1X.15. High School Library Media Program Factor Analysis

High School Library Media Program Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Library media specialists per 100 students	.872							
Library media specialist hours per 100 students	.897							
Library media program paid staff per 100 students	.845							
Library media program paid staff hours per 100 students	.929							
Library media program volunteer hours per 100 students	.476*							
Library media center hours of operation during school					.819			
Hours open before and after school							.633	
Planning, collaborative teaching and assisting teachers	.778							
Instructing, working with and assisting students	.761							
Meetings with principal, colleagues, attending faculty meetings and planning and management committee meetings					.532*			
Scheduled and unscheduled visits by individuals per 100 students	.821							
Information skills instruction contacts with individuals per 100 students			.896					
Information skills instruction contacts with groups per 100 students			.828					
Library media center computers per 100 students	.516*							
School computers with access to library media program online resources per 100 students						.829		
Computers in computer labs per 100 students	.886							
Print volumes per student	.834							
Current print subscriptions to newspapers and magazines per 100 students	.880							
Number of electronic subscriptions per 100 students	.493*							
Average age of nonfiction print collection							.754	
Library media program operational expenditures per student	.889							
Percent of English proficient students			.789					
Percent of White students			.821					
Percent of students not eligible for		.741						

subsidized lunch								
Student-teacher ratio		.672						
Percent of teachers with five or more years of experience								.951

Rotation Method: Varimax and Kaiser Normalization

Rotation converged in 8 iterations.

** The highest factor loadings for these variables were lower than the +/- .600 cutoff point for inclusion in the groupings.*

6. The Contribution of Library Media Program Resources and Activities to Student Performance

The last step in the analysis addresses the contribution that library media program resources and activities make to student performance on WKCE reading and language arts. The contribution was determined through a multiple regression analysis using the percentage of students who scored Proficient and Advanced on WKCE reading and language arts as the dependent variable and the library media program and school factors as the independent variables. The factors were used in order to avoid multicollinearity. Multicollinearity is a situation in which some or all the independent variables are highly intercorrelated. When variables are highly intercorrelated the results obtained through multiple regression are not reliable and therefore can be misinterpreted. The multiple regression analysis used the forward methodology. Under this methodology the independent variables are entered into the analysis only if they meet certain statistical criteria. The order of inclusion in the regression analysis is determined by the respective contribution of each variable to explained variance. Factors explaining a larger portion of the variance are entered into the analysis before factors explaining a smaller portion of the variance.

6.1 Elementary Schools

6.1.1 WKCE Reading Proficient and Advanced

The nine factors associated with elementary school library media program and school characteristics were entered into a multiple regression analysis as independent variables. Percentage of students scoring Proficient and Advanced on WKCE reading was the dependent variable. Four factors explained 32.4 percent of the variance associated with elementary school WKCE reading performance. The four factors, listed in order of magnitude by which they explained academic performance, included:

- **Factor 3: School Variables**

- Percent English proficient students
- Percent of White students
- Percent not eligible for subsidized lunch
- Student-teacher ratio

- **Factor 8: Teacher Experience**

- Percent of teachers with five or more years of teaching experience

- **Factor 2: Print, Technology and Financial Resources**

- Number of print volumes per student
- Number of current print subscriptions per 100 students
- Number of materials checked out per 100 students

Number of computers in computer labs per 100 students
 Total operating expenditures per students

- **Factor 1: Staffing and Leadership**

Number of library media specialists per 100 students
 Number of library media specialist hours per 100 students
 Number of paid staff per 100 students
 Number of paid staff hours per 100 students
 Time spent in meetings with principals, colleagues, faculty, and planning and management committees

Factor 3 – school variables – accounted for 26.7 percent of the variance on WKCE reading performance at the elementary school level. Factor 8 — percent of teachers with five or more years of teaching experience – accounted for 2.4 percent of the variance. Factor 2 – print, technology and financial resources – accounted for 2.0 percent of the variance. Factor 1 – staffing and leadership – accounted for 1.4 percent of the variance. Of the 32.4 percent of the variance in WKCE reading performance explained, library media program print, technology and financial resources and staffing accounted for 3.4 percent of the variance. Hence, 3.4 percent of the WKCE Reading Proficient and Advanced performance can be attributed to the staffing level, staff activities, and size of print, technology and financial resources that library media programs have.

Table IX.16. Multiple Regression Analysis: Elementary School Library Media Programs: WKCE Reading Proficient and Advanced

Factors	R	R Square	Change Statistics				
			R Square Change	F Change	Df1*	Df2*	Sig F Change
Factor 3	.516	.267	.267	108.3	1	298	.000
Factor 8	.539	.290	.024	9.9	1	297	.002
Factor 2	.557	.310	.020	8.6	1	296	.004
Factor 1	.569	.324	.014	5.9	1	295	.016

* DF stands for degrees of freedom.

6.1.2 WKCE Language Arts Proficient and Advanced

The nine factors associated with elementary school library media program and school characteristics were entered into a multiple regression analysis as independent variables. Percent of students scoring Proficient and Advanced on WKCE language arts was the dependent variable. Four factors explained 29.5 percent of the variance associated with elementary school WKCE language arts performance. The four factors included:

- **Factor 3: School Variables**

Percent English proficient students
 Percent of White students
 Percent not eligible for subsidized lunch
 Student-teacher ratio

- **Factor 2: Print, Technology and Financial Resources**

Number of print volumes per student
 Number of current print subscriptions per 100 students
 Number of materials checked out per 100 students
 Number of computers in computer labs per 100 students
 Total operating expenditures per students

- **Factor 6: Hours of Operation**

Number of hours of operation before and after school

- **Factor 8: Teacher Experience**

Percent of teachers with five or more years of teaching experience

Factor 3 – school variables – accounted for 25.1 percent of the variance on WKCE language arts performance at the elementary school level. Factor 2 – print, technology and financial resources – accounted for 1.5 percent of the variance. Factor 6 – hours of operation before and after school – accounted for 1.7 percent of the variance. Factor 8 — teacher experience – accounted for 1.2 percent of the variance. Of the 29.5 percent of the variance in WKCE language arts performance explained, library media program print, technology and financial resources and hours of operation before and after school accounted for 3.2 percent of the variance. The analysis shows that 3.2 percent of WKCE language arts Proficient and Advanced performance can be attributed to the size of print, technology and financial resources that elementary library media programs have.

Table IX.17. Multiple Regression Analysis: Elementary School Library Media Programs: WKCE Language Arts Proficient and Advanced

Factors	R	R Square	Change Statistics				
			R Square Change	F Change	Df1	Df2	Sig F Change
Factor 3	.501	.251	.251	100.0	1	298	.000
Factor 2	.516	.267	.015	8.2	1	297	.013
Factor 6	.533	.284	.017	8.1	1	296	.008
Factor 8	.543	.295	.012	8.1	1	295	.027

6.2 Middle/Junior High Schools

The factor analysis performed on middle/junior high school library media program and school variables resulted in 10 factors that explained 67 percent of the variance in the library media program and school data. These 10 factors were entered into a multiple regression analysis as independent variables. Percent of students scoring Proficient and Advanced on WKCE reading formed the dependent variable. Three factors explained 31.7 percent of the variance associated with middle/junior high school WKCE reading performance. The three factors included:

- **Factor 2: School Variables**

- Percent English proficient students
- Percent of White students
- Percent not eligible for subsidized lunch
- Student-teacher ratio

- **Factor 3: Library Media Center Resources**

- Number of materials checked out per 100 students
- Number of computers in computer labs per 100 students
- Number of print volumes per student
- Number of print subscriptions per 100 students
- Total operating expenditures per student

- **Factor 1: Library Media Program Staffing and Instructional Activities**

- Number of library media specialists per 100 students
- Number of library media specialist hours per 100 students
- Number of library media paid staff per 100 students
- Number of library media paid staff hours per 100 students
- Number of hours spent in planning, collaborative teaching and assisting teachers
- Number of hours spent instructing, working with and assisting students

Factor 2 – school variables – accounted for 22.4 percent of the variance. Factor 3 – library media center resources – accounted for 6.6 percent of the variance on WKCE reading performance at the middle/junior high school level. Factor 1 – library media program staffing and activities – accounted for 2.6 percent of the variance. Of the 31.7 percent of the variance in WKCE reading performance explained, library media program resources, staffing, and instructional activities accounted for 9.2 percent of the variance. The analysis shows that 9.2 percent of middle/junior high school WKCE reading Proficient and Advanced performance can be attributed to library media program staffing level, staff activities, and the size of print, technology and financial resources.

Table IX.18. Multiple Regression Analysis: Middle/Junior High School Library Media Programs: WKCE Reading Proficient and Advanced

Factors	R	R Square	Change Statistics				
			R Square Change	F Change	Df1	Df2	Sig F Change
Factor 2	.474	.224	.224	41.1	1	142	.000
Factor 3	.539	.291	.066	13.2	1	141	.000
Factor 1	.563	.317	.026	5.3	1	140	.022

6.3 High Schools

The eight factors associated with high school library media program and school characteristics were entered into a multiple regression analysis as independent variables. The percentage of students scoring Proficient and Advanced on WKCE reading and the percentage of students scoring Proficient and Advanced on WKCE language arts were used as the dependent variables in two multiple regressions. The results were similar, although a greater percentage of variance was explained in the regression using language arts Proficient and Advanced scores.

6.3.1 WKCE Reading Proficient and Advanced

The multiple regression using the WKCE percent of students scoring Proficient and Advanced in reading resulted in three factors that explained 18.6 percent of the variance associated with high school WKCE language arts performance. The three factors included:

- **Factor 1: Library Media Center Resources**

- Number of library media specialists per 100 students
- Number of library media specialist hours per 100 students
- Number of library media paid staff per 100 students
- Number of library media paid staff hours per 100 students
- Number of volunteer hours per 100 students
- Number of hours spent in planning, collaborative teaching and assisting teachers
- Number of hours spent instructing, working with and assisting students
- Number of scheduled and unscheduled individual visits per 100 students
- Number of library media center computers per 100 students
- Number of computers in computer labs per 100 students
- Number of print volumes per student
- Number of print subscriptions per 100 students
- Number of electronic subscriptions per 100 students
- Total operating expenditures per student

- **Factor 2: School Variables**

Percent not eligible for subsidized lunch
 Student-teacher ratio

Factor 4: School Variables

Percent English proficient students
 Percent of White students

Factor 1 – library media center resources – accounted for 7.9 percent of the variance. Factors 2 and 4 – school variables – accounted for 8.0 and 2.7 percent, respectively of the variance on WKCE reading. Of the 18.6 percent of the variance in WKCE reading performance explained, library media program resources accounted for 7.9 percent of the variance. The analysis shows that the library media program resources contributed 7.9 percent to high school WKCE reading Proficient and Advanced performance.

Table IX.19. Multiple Regression Analysis: High School Library Media Programs: WKCE Reading Proficient and Advanced

Factors	R	R Square	Change Statistics				
			R Square Change	F Change	Df1	Df2	Sig F Change
Factor 1	.281	.079	.079	13.6	1	158	.000
Factor 2	.399	.159	.080	14.9	1	157	.000
Factor 4	.431	.186	.027	5.2	1	156	.024

6.3.2 WKCE Language Arts Proficient and Advanced

The multiple regression using the percent of students scoring Proficient and Advanced on WKCE language arts resulted in the same three factors. However, these three factors explained 31.1 percent of the variance associated with student performance.

Factor 1 – library media center resources – accounted for 19 percent of the variance. Factors 2 and 4 – school variables – accounted for 6.2 and 5.9 percent, respectively of the variance on WKCE language arts performance at the high school level. Of the 31.1 percent of the variance in WKCE language arts performance explained, library media program resources and instructional activities accounted for 19.0 percent of the variance.

**Table IX.20. Multiple Regression Analysis: High School Library Media Programs:
WKCE Language Arts Proficient and Advanced**

Factors	R	R Square	Change Statistics				
			R Square Change	F Change	Df1	Df2	Sig F Change
Factor 1	.436	.190	.190	37.1	1	158	.000
Factor 2	.502	.252	.062	13.0	1	157	.000
Factor 4	.558	.311	.059	13.4	1	156	.000

X. Library Media Programs and Student Performance

This chapter explored the relationship between library media program variables and student performance, using an alternative methodology. This methodology involved a three-step analysis. First, library media program variables were correlated with student performance on WKCE reading and language arts and on ACT reading and English. Second, a median was calculated for each variable and comparisons were made between those library media programs at or below the median and those above the median with regard to percent of students who scored Proficient and Advanced on reading and language arts WKCE. At the high school level, comparisons were also made with regard to student performance on ACT reading and English. Finally, partial correlations were calculated controlling for four school variables: percent of students with limited English proficiency, percent minority, percent of students eligible for subsidized lunch, and teacher-student ratio. The purpose of this analysis was to determine if the correlation between library media program variables and student performance remained positive and significant after controlling for these school variables.

1. Elementary Schools

Library Media Program Staff

The staffing of Wisconsin elementary library media programs, from library media specialists to aides and volunteers, has impacted academic achievement, as measured by the percentage of 4th grade students receiving a Proficient or Advanced score on the WKCE reading and language arts.

WKCE reading and language arts scores correlated positively with several indicators of the level of elementary school library staffing. As shown in Table X.1, scores increased with the number of paid staff, paid staff hours and volunteer hours per 100 students.

Table X.1. Bivariate Correlations Between Library Media Program Staff and WKCE Reading and Language Arts Performance

Elementary Library Media Program Staff	4 th Grade WKCE Reading*			4 th Grade WKCE Language Arts*		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Total paid staff per 100 students	.144	.002	461	.116	.013	461
Paid staff hours per 100 students	.153	.001	461	.114	.014	461
Volunteer hours per 100 students	.141	.002	461	.140	.003	461

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced

** P refers to Probability and N refers to the number of cases.

The typical Wisconsin elementary school has one certified library media specialist and one aide for a total of two paid staff working 49.5 hours a week, and about two hours of volunteer time per week. Between 2.9 and 3.8 percent more students in elementary schools with higher library media program staffing levels and volunteer hours than the typical (median) school scored Proficient or Advanced on reading WKCE. Between 2.1

and 3.0 percent more students in elementary schools with higher library media program staffing levels and volunteer hours than the typical (median) school scored Proficient or Advanced on WKCE language arts

Table X.2. Comparison of 4th Grade WKCE Reading Scores in Elementary Schools with Lower and Higher Library Media Program Staffing Levels

Staff	Median	At or Below Median	Above Median	Change	Percent Change
4th Grade WKCE Reading Proficient or Advanced					
Number of library media specialists	1	84.0%	86.9%	2.9	3.5%
Number of paid staff	2	83.5%	87.3%	3.8	4.6%
Number of paid staff hours	49.5	84.0%	85.0%	1.0	1.2%
Volunteer hours	1.75	82.6%	85.5%	2.9	3.5%
4th Grade WKCE Language Arts Proficient or Advanced					
Number of library media specialists	1	81.3%	83.4%	2.1	2.6%
Number of paid staff	2	80.9%	83.9%	3.0	3.7%
Number of paid staff hours	49.5	80.7%	82.1%	1.4	1.7%
Volunteer hours	1.75	79.9%	82.9%	3.0	3.8%

As shown in Table X.3, of library media program staffing variables, paid staff hours per 100 students had the highest correlation with reading and language arts WKCE Proficient or Advanced performance after controlling for variables such as percentage of students eligible for subsidized lunch and teacher-student ratio. Volunteer hours per 100 students sustained significant correlations of .112 to .140 after controlling for three of four school variables.

Table X.3. Partial Correlations Between Library Media Program Staffing and 4th Grade WKCE Performance Controlling for School Variables

Library Media Program Variables	Partial Correlations with 4 th Grade WKCE Reading and Language Arts Scores by Control Variables*							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Library media specialists per 100 students					.190 .000	.176 .001	.181 .000	.162 .001
Paid staff per 100 students					.272 .000	.238 .000	.257 .000	.223 .000
Paid staff hours per 100 students	.105 .024				.210 .000	.156 .003	.232 .000	.188 .000
Volunteer hours per 100 students	.140 .003	.139 .003	.116 .013	.116 .013			.112 .016	.113 .016

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Hours of Operation

The hours of operation for Wisconsin elementary library media centers, both during school as well as before and after school, had an impact on academic achievement as measured by the percentage of fourth grade students receiving a Proficient or Advanced score on the WKCE reading and language arts.

WKCE reading and language arts scores correlated positively with the hours of operation during school and total hours per 100 students. As shown in Table X.4, scores increased with an increase in the number of hours the library media center was open to students.

Table X.4. Bivariate Correlations Between Library Media Program Hours and WKCE Reading and Language Arts Performance

Elementary School Library Media Program Hours of Operation	4 th Grade WKCE Reading			4 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Library media center hours during school	.109	.019	461			
Hours of operation during school day per 100 students	.130	.005	461			
Hours before school				.105	.026	450
Total hours library media center is open per week	.114	.016	444			
Total hours of operation per 100 students	.133	.005	444			

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Typically, elementary school library media programs operated 35 hours a week during the school day and an additional five hours a week before and after school. A slightly larger percentage of students in schools with longer library media center hours performed better on 4th grade WKCE reading and language arts. Longer library media center hours had a greater impact on WKCE language arts performance, as shown in Table X.5.

Table X.5. Comparison of 4th Grade WKCE Reading and Language Arts Scores in Elementary Schools with Fewer or More Library Media Center Hours

Hours	Median	At or Below Median	Above Median	Change	Percent Change
4th Grade WKCE Reading Proficient or Advanced					
Hours of operation during school	35	83.8%	84.6%	0.8	1.0%
Total hours of operation	40	83.7%	84.6%	0.9	1.1%
4th Grade WKCE Language Arts Proficient or Advanced					
Hours of operation during school	35	80.2%	82.6%	2.4	3.0%
Total hours of operation	40	80.9%	82.5%	1.6	2.0%

The impact of library media center hours of operation during the school day and overall per 100 students on student performance remained statistically significant even after controlling for economic status and teacher-student ratio. Table X.6 demonstrates that regardless of student demographics and teacher-student ratio, library media programs operating longer hours were associated with higher student performance.

Table X.6. Partial Correlations Between Library Media Program Hours and 4th Grade WKCE Performance Controlling for School Variables

Library Media Program Variables	Partial correlations with 4 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Hours operating during school								.115 .014
Hours operating during school per 100 students					.231 .000	.182 .001	.238 .000	.197 .000
Hours open before and after school			.101 .038					
Total hours of operation				.107 .024				
Total hours of operation per 100 students					.236 .000	.185 .001	.238 .000	.198 .000

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Program Staff Activities

WKCE reading and language arts scores correlated positively and significantly with the number of hours library media program staff spent working with students, teaching information and technology skills, providing reading incentives and identifying reading materials for students. As shown in Table X.7, scores increased with an increase in the number of hours staff spent with students.

Table X.7. Bivariate Correlations Between Library Media Program Activities and WKCE Reading and Language Arts Performance

Elementary School Library Media Program Staff Activities	4 th Grade WKCE Reading			4 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Hours working with and teaching students per 100 students				.137	.003	461

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Library media program staff activities had an impact on student performance on WKCE language arts. A slightly larger percentage of students in schools where library media

program staff spent more hours on teaching information and technology skills, on collaborative planning and teaching activities, and on activities associated with access to and delivery of information performed better on the 4th grade WKCE language arts. Longer library media center hours allowing for more activity and instruction with students had a greater impact on WKCE language arts performance, as shown in Table X.8.

Table X.8. Comparison of 4th Grade WKCE Reading and Language Arts Scores in Elementary Library Media Programs with Fewer or More Hours Spent on Activities

Staff Activities	Median	At or Below Median	Above Median	Change	Percent Change
4th Grade WKCE Reading Proficient or Advanced					
Hours spent on information access and delivery activities	19.5	82.9%	85.2%	2.3	2.8%
4th Grade WKCE Language Arts Proficient or Advanced					
Hours spent teaching students information skills	5.5	80.6%	82.2%	1.6	2.0%
Hours spent on planning and teaching activities	11	80.8%	82.0%	1.2	1.5%
Hours spent on information access and delivery activities	19.5	80.2%	82.6%	2.4	3.0%

As shown in Table X.9, the impact of library media staff hours spent working with students per 100 students on student performance as measured by the WKCE remained statistically significant even after controlling for the four school variables.

Table X.9. Partial Correlations Between Library Media Program Activities and 4th Grade WKCE Performance Controlling for School Variables

Library Media Program Variables	Partial Correlations with 4 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Hours spent teaching students information skills		.126 .007		.130 .005				
Hours working with and teaching students per 100 students		.103 .027			.162 .002	.222 .000	.163 .000	.208 .000

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Center Technology

Technology available in elementary school library media centers had an impact on student performance on WKCE reading and language arts scores. WKCE reading and language arts scores correlated positively with technology equipment such as scanners, data projectors and digital cameras per 100 students. Table X.10 shows that scores increased with an increase in the availability of these types of technology equipment.

Table X.10. Bivariate Correlations Between Library Media Program Technology and WKCE Reading and Language Arts Performance

Elementary School Library Media Center Technology	4 th Grade WKCE Reading			4 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Scanners in library media center per 100 students	.115	.017	434	.145	.003	434
Data projectors in library media center per 100 students	.114	.017	440	.117	.014	440
Digital cameras in library media center per 100 students	.117	.013	443			

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Typically, library media centers in elementary schools had 20 computers (median). A slightly larger percentage of students in schools where the library media centers had more computers scored Proficient and Advanced on WKCE reading and language arts, as shown in Table X.11. Also, a larger percentage of students in elementary schools with library media centers that had more technology equipment such as scanners, VCR recorders and digital cameras scored Proficient and Advanced in reading and language arts.

Table X.11. Comparison of 4th Grade WKCE Reading and Language Arts Scores of Elementary Library Media Programs with Less or More Technology

Technology	Median	At or Below Median	Above Median	Change	Percent Change
4th Grade WKCE Reading Proficient or Advanced					
Number of computers in library media center	20	82.9%	84.8%	1.9	2.3%
Number of scanners in library media center	1	83.5%	86.7%	3.2	3.8%
Number of VCR recorders in library media center	4	83.2%	85.1%	1.9	2.3%
Number of digital cameras in library media center	2	82.6%	85.8%	3.2	3.9%
4th Grade WKCE Language Arts Proficient or Advanced					
Number of computers in library media center	20	80.5%	82.3%	1.8	2.2%
Number of scanners in library media center	1	80.7%	84.7%	4.0	5.0%
Number of VCR recorders in library media center	4	80.3%	82.8%	2.5	3.1%
Number of digital cameras in library media center	2	79.9%	83.3%	3.4	4.3%

As shown in Table X.12, the impact of the number of library media center computers per 100 students on student performance remained significant after controlling for the limited English proficiency variable.

Table X.12. Partial Correlations Between Library Media Program Technology and 4th Grade WKCE Performance Controlling for School Variables

Library Media Program Variables	Partial correlations with 4 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Number of library media center computers per 100 students	.133	.130						
	.005	.006						

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Center Collection and Use

The size of the library media program collection and the level of use of resources from the collection by individuals and groups impacted student performance on the WKCE reading and language arts tests. Those scores correlated positively and significantly with the size of the print collection per student and the number of print subscriptions per 100 students. It also correlated positively and significantly with the number of individual

visits to the library media center. Table X.13 shows that scores increased with an increase in the size of the print collection and individual student use.

Table X.13. Bivariate Correlations Between Library Media Program Collection and Use and WKCE Reading and Language Arts Performance

Elementary School Library Media Program Collection and Use	4 th Grade WKCE Reading			4 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Library Media Center Collection						
Number of books per student	.160	.001	455	.126	.007	455
Print subscriptions per 100 students	.121	.010	455	.104	.026	455
Library Media Program Use						
Number of individuals visiting library media center	.132	.005	454			

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Typically, library media centers in elementary schools have 12,000 books (median). A larger percentage of students in schools where the library media centers had more books and where more individuals and groups used the library media center and its resources received Proficient and Advanced reading and language arts, as shown in Table X.14.

Table X.14. Comparison of 4th Grade WKCE Reading and Language Arts Scores in Elementary Library Media Programs with Smaller and Larger Collections and Lower or Higher Levels of Use

Collection and Use	Median	At or Below Median	Above Median	Change	Percent Change
4th Grade WKCE Reading Proficient or Advanced					
Number of books	12,000	82.6%	85.5%	2.9	3.5%
Number of individual visits	58	82.5%	85.5%	3.0	3.6%
Number of group visits	20	83.4%	85.0%	1.6	1.9%
Information skills instruction contacts with individuals	15	82.9%	85.5%	2.9	2.5%
Number of materials checked out	628.5	83.3%	85.0%	1.7	2.0%
4th Grade WKCE Language Arts Proficient or Advanced					
Number of books	12,000	79.8%	82.8%	3.0	3.8%
Number of individual visits	58	80.3%	82.5%	2.2	2.7%
Number of group visits	20	80.6%	82.3%	1.7	2.1%
Information skills instruction contacts with individuals	15	80.4%	82.7%	2.3	2.9%
Number of materials checked out	628.5	80.7%	82.2%	1.5	1.9%

Table X.15 illustrates that after controlling for the school variables, the correlation between library media program print collection and collection use and student performance on WKCE reading and language arts remained positive and statistically significant.

Table X.15. Partial Correlations Between Library Media Program Collection and Use and 4th Grade WKCE Performance Controlling for School Variables

Library Media Program Variables	Partial Correlations with 4 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Library Media Center Collection								
Number of books	.115 .014	.109 .021						
Number of books per student	.160 .001	.106 .024				.140 .008		.192 .000
Print subscriptions per 100 students					.218 .000	.216 .000	.196 .000	.175 .000
Library Media Program Use								
Visits by individuals							.100 .035	
Visits by individuals per student	.109 .021				.185 .000	.137 .010	.194 .000	
Visits by groups per 100 students					.151 .004	.133 .012	.153 .001	
Number of materials checked out			.100 .046					
Number of materials used in library			.130 .006 .046	.149 .002				

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Program Budget

Elementary school library media program capital expenditures had an impact on student performance on WKCE reading and language arts tests. WKCE reading and language arts scores correlated positively with the amount of the library media program's capital expenditures, as shown in Table X.16.

Table X.16. Bivariate Correlations Between Library Media Program Operating Expenditures and WKCE Reading and Language Arts Performance

Elementary School Library Media Program Budget	4 th Grade WKCE Reading			4 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Total Capital Expenditures	.134	.004	461	.126	.007	461

* *Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.*

** *P refers to Probability and N refers to the number of cases.*

The median operating expenditures of a library media program in elementary schools in 2004-05 was \$9,600. A slightly larger percentage of students in schools with higher library media program operating expenditures received Proficient and Advanced reading and language arts scores, as shown in Table X.17.

Table X.17. Comparison of 4th Grade WKCE Reading and Language Arts Scores in Elementary Library Media Programs with Smaller or Larger Budget

Technology	Median	At or Below Median	Above Median	Change	Percent Change
4th Grade WKCE Reading Proficient or Advanced					
Total operating expenditures	\$9,600	83.6%	84.6%	1.0	1.2%
4th Grade WKCE Language Arts Proficient or Advanced					
Total operating expenditures	\$9,600	80.4%	82.4%	2.0	2.5%

Table X.18 shows that after controlling for students' economic status, the correlation between library media program operating expenditures per student and student performance on WKCE reading and language arts tests remained positive and statistically significant. This was also true for language arts scores after controlling for teacher-student ratio.

Table X.18. Partial Correlations Between Library Media Program Operating Expenditures and 4th Grade WKCE Performance Controlling for School Variables

Library Media Program Variables	Partial Correlations with 4 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Operating expenditures per student					.128 .015	.135 .010		.116 .013

* *Correlations with WKCE Reading and Language Arts Proficient or Advanced*

2. Middle/Junior Schools

Staffing

Wisconsin middle/junior high school library media program staffing, including certified library media specialists and aides and the hours they spend serving students, impacted academic achievement as measured by the percentage of 8th grade students receiving a Proficient or Advanced score on the WKCE reading and language arts tests.

WKCE reading and language arts scores correlated positively and significantly with staffing levels and staff hour indicators. Table X.19 shows that test scores increased with the number of library media specialists and hours worked and with the number of paid staff and paid staff hours per 100 students.

Table X.19. Bivariate Correlations Between Library Media Program Staffing and WKCE Reading and Language Arts Performance

Middle/Junior High School Library Media Program Staff	8 th Grade WKCE Reading			8 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Number of library media specialists	.191	.004	230	.179	.007	230
Library media specialists per 100 students	.245	.000	230	.278	.000	230
Library media specialist hours	.205	.002	230	.251	.002	230
Library media specialist hours per 100 students	.192	.003	230	.225	.001	230
Number of library media program paid staff	.190	.004	230	.211	.001	230
Number of paid staff per 100 students	.286	.000	230	.287	.000	230
Paid staff hours	.226	.001	230	.255	.000	230
Paid staff hours per 100 students	.302	.000	230	.283	.000	230

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

The typical Wisconsin middle/junior high school had one certified library media specialist and one library aide for a total of two paid staff working 65 hours a week. A larger percentage of students in middle/junior high schools with higher library media program staffing levels and hours scored Proficient or Advanced on the WKCE, as demonstrated in Table X.20.

Table X.20. Comparison of 8th Grade WKCE Reading and Language Arts Scores in Middle/Junior High Schools with Lower or High Library Media Program Staffing Levels

Staff	Median	At or Below Median	Above Median	Change	Percent Change
8th Grade WKCE Reading Proficient or Advanced					
Number of library media specialists	1	83.1%	85.0%	1.9	2.3%
Number of paid staff	2	82.9%	84.0%	1.1	1.3%
Number of paid staff hours	65	81.9%	84.4%	2.5	3.1%
8th Grade WKCE Language Arts Proficient or Advanced					
Number of library media specialists	1	72.2%	77.0%	4.8	6.6%
Number of paid staff hours	65	71.1%	73.5%	2.4	3.4%

As shown in Table X.21, library media program staffing levels and staff hours per 100 students correlated positively and significantly with reading and language arts WKCE Proficient or Advanced performance after controlling for variables such as percent of students with limited English proficiency, percent minority, percent eligible for subsidized lunch and teacher-student ratio.

Table X.21. Partial Correlations Between Library Media Program Staffing and 8th Grade WKCE Performance Controlling for School Variables

Library Media Program Staffing	Partial Correlations with 8 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Library media specialists per 100 students	.182 .006	.226 .001	.131 .048	.189 .004	.301 .000	.333 .000	.221 .001	.258 .000
Library media specialists hours per 100 students	.161 .015	.199 .003	.139 .036	.181 .006	.197 .009	.221 .003	.153 .020	.191 .004
Paid staff per 100 students	.226 .001	.234 .000	.164 .013	.176 .007	.256 .001	.231 .002	.250 .000	.255 .000
Paid staff hours per 100 students	.245 .000	.230 .000			.248 .001	.203 .007	.244 .000	.230 .000

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Hours of Operation

Wisconsin middle/junior high school library media center hours of operation, both during school and before school, as well as overall, had an impact on academic achievement as measured by the percentage of 8th grade students receiving a Proficient or Advanced score on the WKCE reading and language arts.

Eighth grade WKCE reading and language arts scores correlated positively with the hours of operation. As shown in Table X.22, scores increased with an increase in the number of hours the library media center was open to students.

Table X.22. Bivariate Correlations Between Library Media Center Hours and WKCE Reading and Language Arts Performance

Middle/Junior High School Library Media Program Hours of Operation	8 th Grade WKCE Reading			8 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Library media center hours during school	.288	.000	229	.302	.000	229
Library media center hours before school				.144	.032	224
Total hours library media center is open per week	.268	.000	224	.291	.000	234
Total hours per 100 students				.287	.000	224

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Middle/Junior high school library media centers were typically open 3.75 hours a week before and after school. A higher percentage of students in schools where the library media center was open more hours before and after school performed better on 8th grade WKCE reading and language arts as illustrated by Table X.23.

Table X.23. Comparison of 8th Grade WKCE Reading and Language Arts Scores of Middle/Junior High Schools with Fewer or More Hours of Operation

Hours of Operation	Median	At or Below Median	Above Median	Change	Percent Change
8th Grade WKCE Reading Proficient or Advanced					
Hours open before and after school	3.75	82.2%	84.0%	1.8	2.2%
8th Grade WKCE Language Arts Proficient or Advanced					
Hours open before and after school	3.75	71.0%	73.4%	2.4%	3.4%

The impact of library media center hours of operation during school and overall on student performance remained statistically significant even after controlling for variables such as percent of limited English proficiency, percent minority, economic status and teacher-student ratio as shown in Table X.24.

Table X.24. Partial Correlations Between Library Media Program Hours and 8th Grade WKCE Performance Controlling for School Variables

Library Media Program Variables	Partial Correlations with 8 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Hours operating during school	.224	.248	.137	.176	.299	.299	.244	.264
	.001	.000	.038	.008	.000	.000	.000	.000
Total hours of operation	.215	.242	.134	.175	.283	.288	.216	.243
	.001	.000	.046	.009	.000	.000	.001	.000

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Program Staff Activities

WKCE reading and language arts scores correlated positively and significantly with staff activities such as:

- Collaboratively planning and teaching with and assisting teachers,
- Meetings with other library media specialists in the district
- Attending faculty meetings
- Collection development and management

Table X.25. Bivariate Correlations Between Library Media Program Staff Activities and WKCE Reading and Language Arts Performance

Middle/Junior High School Library Media Program Staff Activities	8 th Grade WKCE Reading			8 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Hours spent planning, teaching and assisting teachers per 100 students	.146	.027	230	.210	.001	230
Percent time spent on collection management	.149	.024	230			
Percent time spent meeting with colleagues	.134	.043	230			
Percent time spent attending faculty meetings				.141	.033	230
Total percent time spent in meetings	.155	.019	230	.139	.035	230
Hours spent in meetings per 100 students	.220	.001	230	.208	.001	230

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Library media program staff activities had an impact on student performance on WKCE reading and language arts. As shown in Table X.26, a larger percentage of students in schools where library media specialists spent more hours teaching collaboratively with teachers, on information and access delivery, on collection development and management, on meetings with administrators and colleagues, and participating in faculty meetings and curriculum planning and management committees received Proficient or Advanced scores. **Participation in faculty meetings made the greatest impact because these meetings most inform library media specialists about curricular and instructional issues.**

Table X.26. Comparison of 8th Grade WKCE Reading and Language Arts Scores of Middle/Junior High Schools with Fewer or More Hours of Staff Activities

Staff Activities	Median	At or Below Median	Above Median	Change	Percent Change
8th Grade WKCE Reading Proficient or Advanced					
Hours spent on information access and delivery	24.0	82.0%	84.4%	2.4	2.9%
Hours spent on collection management	2.40	81.7%	84.4%	2.7	3.3%
Hours spent meeting with other library staff	0.50	81.7%	86.0%	4.3	5.3%
Hours spent in planning and management committees	0.25	82.1%	84.4%	2.3	2.8%
Hours spent meeting with principal	0.22	81.9%	84.3%	2.4	2.9%
Hours spent attending faculty meetings	0.50	79.3%	84.1%	4.8	6.1%
8th Grade WKCE Language Arts Proficient or Advanced					
Hours spent teaching collaboratively with teachers	1.00	71.3%	73.3%	2.0	2.8%
Hours spent on collection management	2.40	70.3%	74.1%	3.8	4.5%
Hours spent meeting with other library staff	0.50	70.9%	74.9%	4.0	5.6%
Hours spent in planning and management committees	0.25	70.9%	73.9%	3.0	4.2%
Hours spent meeting with principal	0.22	71.1%	73.4%	2.3	3.2%
Hours spent attending faculty meetings	0.50	67.4%	73.8%	6.4	9.5%

Table X.27 shows that the impact on student performance of library media staff activities such as hours spent planning, teaching with and assisting teachers, hours spent working with students, and hours spent in meetings with faculty, the principal, and colleagues remained statistically significant even after controlling for percent of students with limited English proficiency, percent minority, economic status and teacher-student ratio.

Table X.27. Partial Correlations Between Library Media Program Staff Activities and 8th Grade WKCE Performance Controlling for School Variables

Library Media Program Staff Activities	Partial Correlations with 8 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Hours planning, collaborating and assisting teachers per 100 students	.134 .043	.202 .002	.138 .037	.214 .001		.169 .025		.171 .010
Hours working with and teaching students per 100 students				.129 .051				
Hours spent in meetings per 100 students	.191 .004	.181 .006			.216 .004	.178 .018	.178 .007	.170 .010

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Center Technology

The technology available in middle/junior high school library media centers and access to library media program online resources from the classroom had an impact on student performance on WKCE reading and language arts. Those scores correlated positively with the number of computers and the availability of technology equipment, such as scanners, data projectors, video and digital cameras, per 100 students. Table X.28 shows that scores increased with a greater availability of computers and other types of technology equipment.

Table X.28. Bivariate Correlations Between Library Media Center Technology and WKCE Reading and Language Arts Performance

Middle/Junior High School Library Media Program Technology	8 th Grade WKCE Reading			8 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Computers in library media center per 100 students	.127	.050	227			
Scanners in library media center/100 students	.160	.017	222	.178	.008	222
Data projectors in library media center/100 students	.214	.001	223	.207	.002	223
Digital cameras in library media center/100 students	.155	.021	222			
Video cameras in library media center/100 students	.186	.005	225	.182	.006	225
Access to online databases from classrooms	.156	.022	217	.149	.029	217
Access to online databases from all school computers	.156	.022	216	.147	.031	216
Computers in a typical classroom per 100 students				.129	.050	228

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

A larger percentage of students in middle/junior high schools where the library media center had more technology equipment received Proficient and Advanced reading and language arts, as shown in Table X.29.

Table X.29. Comparison of 8th Grade WKCE Reading and Language Arts Scores of Middle/Junior High Schools with Less or More Technology in Library Media Center

Technology Equipment	Median	At or Below Median	Above Median	Change	Percent Change
8th Grade WKCE Reading Proficient or Advanced					
Number of scanners in library media center	1	82.4%	84.7%	2.3	2.8%
Number of VCR players in library media center	6	82.3%	84.1%	1.8	2.2%
Number of video cameras in library media center	2	82.0%	85.0%	3.0	3.7%
8th Grade WKCE Language Arts Proficient or Advanced					
Number of scanners in library media center	1	71.2%	74.6%	3.4	4.8%
Number of DVD players in library media center	2	71.5%	73.2%	1.7	2.4%
Number of VCR players in library media center	6	70.9%	73.9%	3.0	4.2%
Number of video cameras in library media center	2	71.0%	74.5%	3.5	4.9%

Library Media Center Collection and Use

The size of the library media program collection and the degree to which those resources were used by individuals and groups impacted student performance on WKCE reading and language arts. WKCE reading and language arts scores correlated positively and significantly with the size of the print and audio collection per student, the number of the print subscriptions per 100 students, and the average age of the nonfiction collection. It also correlated positively and significantly with the number of group visits to the library media center, the number of individual information skills instruction contacts per 100 students, and the number of materials checked out per 100 students. Table X.30 shows that scores increased with an increase in the size of the print collection and student use.

Table X.30. Bivariate Correlations Between Library Media Program Collection and Use and WKCE Reading and Language Arts Performance

Middle/Junior High School Library Media Program Collection and Use	8 th Grade WKCE Reading			8 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Library Media Program Collection						
Number of books per student	.242	.000	226	.244	.000	226
Print subscriptions per 100 students	.166	.012	226	.195	.003	226
Number of audio materials per student				.177	.009	220
Average age of non-print collection	.129	.046	240	.137	.033	240
Library Media Program Use						
Number of groups visiting library media center per 100 students	.182	.006	224	.234	.000	224
Number of information skills instruction contacts with individuals per 100 students	.133	.046	224			
Materials checked out per 100 students	.150	.025	223	.138	.039	223

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

As shown in Table X.31, a larger percentage of students in schools where the library media center had more print subscriptions, circulated more software programs to staff and students, requested more materials from other libraries, loaned more materials to other libraries, and had a more current nonfiction collection received Proficient and Advanced scores on WKCE reading and language arts.

Table X.31. Comparison of 8th Grade WKCE Reading and Language Arts Scores of Middle/Junior High Schools with Smaller or Larger Collection and Usage

Collection and Use	Median	At or Below Median	Above Median	Change	Percent Change
8th Grade WKCE Reading Proficient or Advanced					
Print subscriptions	33	82.2%	84.0%	1.8	2.2%
Software packages circulated to staff and students	0	82.2%	84.6%	2.4	2.9%
Number of items loaned to other library media centers	2	82.2%	84.6%	2.4	2.9%
Number of items requested from other library media centers	2	82.1%	84.8%	2.7	3.3%
Age of nonfiction print collections		81.9%	84.3%	2.4	2.9%
8th Grade WKCE Language Arts Proficient or Advanced					
Print subscriptions	33	71.1%	73.4%	2.3	3.2%
Software packages circulated to staff and students	0	71.4%	73.7%	2.3	3.2%
Number of items loaned to other library media centers	2	71.6%	73.4%	1.8	2.5%
Number of items requested from other library media centers	2	71.4%	73.7%	2.3	3.2%
Average age of non-fiction print collection	15	71.4%	73.4%	2.0	2.8%

Table X.32 shows that after controlling for the school variables, the correlations between student performance on WKCE reading and language arts and the size of the print collection, the number of print subscriptions, the average age of the nonfiction collection, and the number of group visits to the library media center remained positive and statistically significant.

Table X.32. Partial Correlations Between Library Media Program Collection and Use and 8th Grade WKCE Performance Controlling for School Variables

Library Media Program Collection and Use	Partial Correlations with 8 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Visits by groups per 100 students	.140 .037	.201 .003		.132 .049			.151 .024	.208 .002
Number of books per students	.205 .002	.211 .001	.173 .009	.175 .009	.156 .039		.185 .005	.196 .003
Print subscriptions per 100 students		.157 .018					.142 .034	.174 .009
Average age of non-print collection	.155 .023							

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Program Budget

The operating expenditures of middle/junior high school library media programs had an impact on student performance on WKCE reading and language arts tests. WKCE reading and language arts Proficient and Advanced scores correlated positively with the total amount of the library media program’s operating expenditures, as demonstrated in Table X.33.

Table X.33. Bivariate Correlations Between Library Media Program Budget and WKCE Reading and Language Arts Performance

Middle/Junior High School Library Media Program Budget	8 th Grade WKCE Reading			8 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Total operating expenditures	.215	.001	230	.218	.001	230

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Table X.34 shows that after controlling for students’ level of English proficiency and teacher-student ratio, the correlation between library media program operating expenditures per student and student performance on WKCE reading and language arts remained positive and significant.

Table X.34. Partial Correlations Between Library Media Program Budget and 8th Grade WKCE Performance Controlling for School Variables

Library Media Program Budget	Partial Correlations with 8 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Operating expenditures per student	.149	.161					.203	.207
	.024	.015					.002	.002

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

3. High Schools

Staffing

Table X.35 shows that WKCE and ACT test scores increased with the presence of full-time staff and with the number of paid staff. The number of high school full-time certified library media specialists and the number of full-time paid staff were positively and significantly correlated with performance on WKCE language arts. Program staffing shows a positive correlation with student performance on both the ACT reading and the ACT English exams. The number of volunteer hours per 100 students also had an impact on WKCE reading scores.

Table X.35. Bivariate Correlations Between Library Media Program Staff, WKCE Reading and Language Arts Performance and ACT Reading and English Performance

High School Library Media Program Staffing	10 th Grade WKCE Reading			10 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Number of full-time library media specialists				.152	.015	255
Number of full-time paid staff				.219	.000	255
Number of volunteer hours per 100 students	.124	.048	255			
	ACT Reading			ACT English		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Number of paid staff	.255	.000	254	.257	.000	254

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

The typical Wisconsin high school had one certified library media specialist and one aide for a total of two paid staff working 70 hours a week. A larger percentage of students in high schools with more paid staff and more hours worked in the library media program

scored Proficient or Advanced on the WKCE and higher on the ACT. As shown in Table X.36, library media program staffing composition and levels had a larger impact on ACT reading and English performance. Students in better staffed programs scored 8.4 to 21.8 percent higher on ACT compared to students in schools where library media programs had fewer resources.

Table X.36. Comparison of 10th Grade WKCE Reading and Language Arts Scores and ACT English and Reading Scores in High Schools with Less or More Staffing

Staff	Median	At or Below Median	Above Median	Change	Percent Change
10th Grade WKCE Reading Proficient or Advanced					
Number of library media specialists	1	71.5%	74.0%	2.5	3.5%
Library media specialist hours	40	71.5%	73.6%	2.1	2.9%
Number of paid staff	2	71.0%	73.0%	2.0	2.8%
Number of paid staff hours	70	70.2%	73.2%	3.0	4.3%
10th Grade WKCE Language Arts Proficient or Advanced					
Number of library media specialists	1	68.5%	70.6%	2.1	3.1%
Library media specialist hours	40	68.6%	70.5%	1.9	2.8%
Number of paid staff	2	67.7%	70.6%	2.9	4.3%
Number of paid staff hours	70	66.6%	70.8%	4.2	6.3%
ACT Reading					
Number of full-time library media specialists	1	19.9	23.1	3.2	16.1%
Number of library media specialists	1	19.7	23.0	3.3	16.7%
Library media specialist hours	40	20.0	23.1	3.1	15.5%
Number of full-time aides	1	19.7	22.0	2.3	11.7%
ACT English					
Number of full-time library media specialists	1	16.5	20.1	3.6	21.8%
Number of library media specialists	1	16.6	18.0	1.4	8.4%
Library media specialist hours	40	16.4	19.9	3.5	21.3%
Number of full-time aides	1	16.4	19.2	2.8	17.1%

As shown in Table X.37, the number of library media program paid staff and paid staff hours correlated positively and significantly with WKCE reading and language arts scores and with ACT reading and English scores after controlling for variables such as

the percent of students with limited English proficiency, percent minority, percent eligible for subsidized lunch and teacher-student ratio.

Table X.37. Partial Correlations Between Library Media Program Staffing and 10th Grade WKCE and ACT Performance Controlling for School Variables

Library Media Program Variables	Partial Correlations with 10 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Library media program paid staff hours	.257 .000	.274 .000	.172 .006	.202 .001			.179 .004	.182 .004
	Partial Correlations with 10 th Grade ACT Reading and English Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	English	Reading	English	Reading	English	Reading	English
Library media program paid staff	.318 .000	.332 .000	.291 .000	.304 .000	.219 .002	.210 .002	.245 .000	.253 .000

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

Staff Activities

ACT scores were higher in schools where the library media specialist spent more time involved with technology and reading promotion and interacted professionally with the administrators and teaching colleagues. Table X.38 shows that ACT reading and English scores correlated positively and significantly with library media program staff activities such as:

- Managing technology
- Collection development, technology and reading incentive program management
- Attending faculty meetings and meeting with principal and colleagues

Table X.38. Bivariate Correlations Between Library Media Program Staff Activities and ACT Performance

High School Library Media Program Staff Activities	ACT Reading			ACT English		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Percent of time spent on managing technology	.165	.008	254	.121	.055	254
Collection, technology and reading incentive program management	.193	.002	254	.169	.007	254
Percent time spent in meetings with faculty,				.124	.048	254

principal and colleagues						
--------------------------	--	--	--	--	--	--

*** P refers to Probability and N refers to the number of cases.*

Library media program staff activities had an impact on student performance on ACT English. As shown in Table X.39, a larger percentage of students in high schools where library media specialists spent more hours on planning instructional units with teachers, teaching collaboratively with teachers, and on a combination of learning and teaching activities scored higher on ACT English.

Table X.39. Comparison of 10th Grade ACT English Scores in High Schools with Fewer or More Hours Spent on Staff Activities

Staff Activities	Median	At or Below Median	Above Median	Change	Percent Change
ACT English					
Hours spent planning instructional units with teachers	1	15.8	17.7	1.9	12.0%
Hours spent teaching collaboratively with teachers	2	16.0	17.6	1.6	10.0%
Hours spent on learning and teaching activities	13.7	15.9	17.4	1.5	9.4%

Table X.40 shows that library media specialist activities such as hours spent planning and collaborating with teachers, hours spent on teaching information skills, and hours spent in meetings with faculty, the principal, and colleagues had a positive and statistically significant impact on WKCE and ACT performance even after controlling for the percent of students with limited English proficiency and the percent of minority students.

Table X.40. Partial Correlations Between Library Media Center Hours Spent on Staff Activities and 10th Grade WKCE and ACT Performance Controlling for School Variables

Library Media Program Variables	Partial Correlations with 10 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Hours spent planning, teaching and assisting teachers		.120 .057		.146 .020				
Hours spent in meetings per 100 students			.170 .007					
Teaching students information skills				.118 .059				
	Partial Correlations with 10 th Grade ACT Reading and English Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	English	Reading	English	Reading	English	Reading	English
Hours spent on planning, teaching and assisting teachers	.124 .049	.151 .017	.148 .010	.181 .004				

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Center Technology

The availability of technology in the high school library media center and the access to library media program online resources from school computers had an impact on WKCE language arts scores and on ACT reading and ACT English scores. Table X.41 shows that those scores increased with an increase in the number of library media center computers and school computers networked to library media program resources.

Table X.41. Bivariate Correlations Between Library Media Center Technology, WKCE Reading and Language Arts Performance and ACT Reading and English Performance

High School Library Media Program	10 th Grade WKCE Reading			10 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Number of computers in library media center per 100 students				.124	.049	254
School computers networked to library media program resources per 100 students				.130	.050	227
	ACT Reading			ACT English		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Number of computers in library media center per 100 students	.176	.005	253	.149	.018	253

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

On average, high school library media centers had 28 computers and 175 school computers networked to library media program online resources (median). Students scored higher on WKCE and ACT in high schools where the library media center had more computers, more school computers were networked to library media program resources and a wider range of technology equipment was available, as shown in Table X.42.

Table X.42. Comparison of 10th Grade WKCE Reading and Language Arts and ACT Reading and English Scores in High Schools with Less or More Technology

Technology	Median	At or Below Median	Above Median	Change	Percent Change
10th Grade WKCE Reading Proficient or Advanced					
Number of laptops in library media center	2	70.6%	73.0%	2.4	3.4%
Number of scanners in library media center	1	71.0%	73.2%	2.2	3.1%
Number of DVD recorders in library media center	2	70.5%	73.0	2.5	3.5%
Number of digital cameras in library media center	2	70.7%	73.2%	2.5	3.5%
10th Grade WKCE Language Arts Proficient or Advanced					
School computers networked to library media program resources	175	68.1%	69.4%	1.3	1.9%
Number of laptops in library media center	2	68.0%	69.7%	1.7	2.5%
Number of scanners in library media center	1	67.8%	70.7%	2.9	4.3%
Number of DVD recorders in library media center	2	67.7%	69.8%	2.1	3.1%
Number of digital cameras in library media center	2	67.5%	70.6%	3.1	4.6%
ACT Reading					
Number of laptops in library media center	2	19.5	20.6	1.1	5.6%
Number of data projectors in library media center	2	19.4	20.7	1.3	6.7%
ACT English					
Number of computers in library media center	28	16.0	17.3	1.3	8.1%
School computers networked to library media program resources	175	16.0	17.4	1.4	8.8%
Number of data projectors in library media center	2	15.5	18.3	2.8	18.1%
Number of digital cameras in library media center	2	15.9	17.8	1.9	11.9%

As shown in Table X.43, the number of library media center computers per 100 students and school computers networked to library media program resources per 100 students had a sustaining positive and statistically significant impact on student WKCE and ACT performance even after controlling for school variables such as the percent of students with limited English proficiency, percent minority, economic status, and teacher-student ratio.

Table X.43. Partial Correlations Between Library Media Center Technology and 10th Grade WKCE and ACT Performance Controlling for School Variables

Library Media Program Technology	Partial Correlations with 10 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Number of computers in library media center per 100 students		.155 .014		.148 .019				.154 .014
School computers networked to library media program resources		.130 .052		.199 .003		.127 .084		
	Partial Correlations with 10 th Grade ACT Reading and English Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	English	Reading	English	Reading	English	Reading	English
Number of computers in library media center per 100 students	.188 .003	1.163 .10	.187 .003	.159 .011			.169 .007	.145 .022
School computers networked to library media program resources per 100 students	.166 .013	.180 .007	.222 .001	.243 .000	.221 .002	.226 .002		

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Center Collection and Use

The average age of the nonfiction print collection and the number of individual visits to the library media center had an impact on the WKCE reading and language arts scores and ACT reading and English scores of Wisconsin high school students. Table X.44 shows that WKCE reading and language arts scores and ACT Reading and English scores increased with more current nonfiction print collections and library media center use as measured by individual visits.

Table X.44. Bivariate Correlations Between Library Media Center Collection and WKCE and ACT Performance

High School Library Media Program Collection	10 th Grade WKCE Reading			10 th Grade WKCE Language Arts		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Average age of non-print collection	.129	.046	240	.137	.033	240
	ACT Reading			ACT English		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Number of individual visits	.144	.024	245	.153	.017	245

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

As shown in Table X.45, a larger percentage of students in high schools where the library media center had a larger print collection, more electronic subscriptions, circulated more software programs to staff and students, and experienced greater use of resources through individual visits received Proficient and Advanced reading and language arts scores. Students also received higher ACT reading and English scores in such high schools.

Table X.45. Comparison of 10th Grade WKCE and ACT Scores in High Schools with Smaller or Larger Collections

Collection and Use	Median	At or Below Median	Above Median	Change	Percent Change
10th Grade WKCE Reading Proficient or Advanced					
Individual visits to library media center	462.5	69.9%	73.3%	3.4	4.9%
Software programs circulated to students and staff	2	70.8%	72.8%	2.0	2.8%
10th Grade WKCE Language Arts Proficient or Advanced					
Individual visits to library media center	462.5	66.6%	70.6%	4.0	6.0%
Software programs circulated to students and staff	2	67.9%	69.7%	1.8	2.7%
Book collection	12,718	67.8%	69.6%	1.8	2.7%
ACT Reading					
Individual visits to library media center	462.5	15.7	17.5	1.8	11.5%
Book collection	12,718	19.4	20.6	1.2	6.2%
Electronic subscriptions	3	19.2	20.8	1.6	8.3%
ACT English					
Individual visits to library media center	462.5	18.8	21.1	2.3	12.2%
Book collection	12,718	15.6	17.7	2.1	13.5%
Electronic subscriptions	3	15.4	18.0	2.6	16.9%

Table X.46 shows that after controlling for the school variables, the correlations between student performance on the WKCE and ACT and size of the print collection in library media centers, the number of print subscriptions, the average age of the nonfiction print collection, and the number of individual visits remained positive and statistically significant.

Table X.46. Partial Correlations Between Library Media Center Collection and Use and 10th Grade WKCE and ACT Performance Controlling for School Variables

Library Media Program Collection and Use	Partial Correlations with 10 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Book collection				.145 .021				
Print subscriptions		.145 .025				.139 .052		.127 .050
Average age of non-print collection	.138 .033				.149 .036			
Visits by individuals		.134 .036	.142 .027				.141 .028	.124 .053
	Partial Correlations with 10 th Grade ACT Reading and English Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	English	Reading	English	Reading	English	Reading	English
Visits by individuals	.153 .017	.169 .010	.126 .050	.136 .034			.134 .037	.146 .023
Book collection	.139 .027	.150 .017	.218 .000	.240 .000	.159 .022	.166 .017		

* Correlations with WKCE Reading and Language Arts Proficient or Advanced.

Library Media Program Budget

The operating expenditures of high school library media programs had an impact on student performance on ACT Reading and English scores. ACT reading and English scores correlated positively with the amount of the library media program operating expenditures.

Table X.47. Bivariate Correlations Between Library Media Program Budget and ACT Reading and English Performance

High School Media Library Program Budget	ACT Reading			ACT English		
	Pearson Correlation	P	N	Pearson Correlation	P	N
Operating Expenditures	.154	.014	254	.148	.018	254

* Bivariate correlations with WKCE Reading and Language Arts Proficient or Advanced.

** P refers to Probability and N refers to the number of cases.

Typically, high school library media programs had a total operating budget of \$18,389 (median). Students in high school library media programs with larger operating budgets scored better on ACT reading and English than students in high schools with library media programs with smaller operating budgets.

Table X.48. Comparison of 10th Grade ACT Scores in High Schools with Smaller or Larger Budgets

Program Budget	Median	At or Below Median	Above Median	Change	Percent Change
ACT Reading					
Operating expenditures	\$18,389	19.2	20.7	1.5	7.8%
ACT English					
Operating expenditures	\$18,389	15.2	18.0	2.8	18.4%

Table X.49 shows that after controlling for the level of English proficiency and the percent of minority students, the correlation between library media program operating expenditures and student performance on WKCE reading and language arts remained positive and statistically significant. The relationship between operating expenditures and ACT reading and English scores remained positive and statistically significant even after controlling for all school variables. This shows that regardless of the percentage of minority students and students with limited English proficiency in a school, students in schools with higher library media program budgets performed better on the ACT exam.

Table X.49. Partial Correlations Between Library Media Program Budget and 10th Grade WKCE and ACT Performance Controlling for School Variables

Library Media Program Budget	Partial Correlations with 10 th Grade WKCE Reading and Language Arts Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts	Reading	Lang. Arts
Operating expenditures		.147 .09	.129 .041	.170 .007				
	Partial Correlations with 10 th Grade ACT Reading and English Scores by Control Variables							
	Limited English Proficiency		Percent Minority		Percent Eligible for Subsidized Lunch		Teacher-Student Ratio	
	Reading	English	Reading	English	Reading	English	Reading	English
Operating expenditures	.200 .001	.203 .001	.234 .000	.242 .000	.173 .013	.164 .018	.137 .029	.138 .029

** Correlations with WKCE Reading and Language Arts Proficient or Advanced.*

XI. Library Media Programs in Schools with High and Low Performance on Reading Knowledge and Concepts Examinations

Twenty-five library media programs in schools with the highest percentage of students scoring Proficient and Advanced on the Wisconsin Reading Knowledge and Concepts Examination (WKCE) in 2003-04 were compared with 25 library media programs in schools with the lowest percentage of students scoring Proficient and Advanced on the reading WKCE at each grade level: elementary, middle/junior high, and high school. At each of those levels, library media programs in schools with the highest performance levels had library media programs with more staff and more resources and spent more time on instructional activities.

1. Elementary School Library Media Programs

In the 25 elementary schools with the highest 4th grade performance, 37.3 percent of the students scored Proficient and 61.7 percent scored Advanced on the reading WKCE for a total of 99.0 percent of students scoring Advanced or Proficient. In comparison, 34.5 percent of the students in the bottom 25 schools scored Proficient and 20.6 percent scored Advanced on the WKCE Reading for a total of 55.1 percent of students scoring at those levels. Three times more students in the top 25 elementary schools scored Advanced than those in the bottom 25 schools.

The library media programs in the 25 top elementary schools had better developed programs than the library media programs in the bottom 25 schools. As shown by Table XI.1, the library media programs in the top schools had:

- 142.6 percent more library staff per 100 students
- 95.1 percent more staff hours per 100 students
- 79.5 percent more operating hours per 100 students
- 38.3 percent more print volumes per student
- 92.7 percent more current subscriptions to magazines and newspapers per 100 students
- 7.7 percent more library media program dollars per student

Table XI.1. Elementary School Library Media Programs: Program Development

Elementary School Library Media Program Predictors	25 Highest Scoring Elementary Schools	25 Lowest Scoring Elementary Schools	Difference	Percent Difference*
Percent of students Proficient and Advanced	99.0%	55.1%	43.9	79.7%
Percent of students Advanced	61.7%	20.6%	41.1	199.5%
Program Development:				
Number of library media staff	2.24	1.76	0.48	27.3%
Library media staff per 100 students	1.48	0.61	0.87	142.6%
Library media staff hours	51.8	47.6	4.2	8.8%
Library media staff hours per 100 students	32.0	16.4	15.6	95.1%
Library media program hours of operation	36.5	36.1	0.4	1.1%
Library media program hours of operation per 100 students	21.9	12.2	9.7	79.5%
Print volumes	11,371	11,111	260	2.3%
Print volumes per student	43.7	31.6	12.1	38.3%
Current subscriptions to newspapers and magazines	22.0	18.3	3.7	20.2%
Current subscriptions to newspapers and magazines per 100 students	10.6	5.5	5.1	92.7%
Library media program operating expenditures per student	\$27.8	\$25.8	2.0	7.7%

* Percent difference was calculated by dividing figures in the "highest scoring" column into figures in the "lowest scoring" column.

The two groups of library media programs differed in the amount of time spent on leadership and collaboration-teaching activities performed by library media specialists with regard to the elements listed below.

As shown in Table XI.2, elementary school library media program staff in the top scoring 25 schools spend about 26 to 29 percent more time on:

- Planning instructional units with teachers
- Assessing collaborative student projects
- Locating books for students involved in electronic reading programs and administrating these programs

These library media program staff also spent 12 percent more time on collection development.

Table XI.2. Elementary School Library Media Programs: Leadership and Collaboration

Elementary School Library Media Program Predictors	25 Highest Scoring Elementary Schools	25 Lowest Scoring Elementary Schools	Difference	Percent Difference*
Collaboration-Teaching Activities (Hours per Week):				
Planning instructional units with teachers	1.62	1.26	0.36	28.6%
Assessing collaborative student projects	0.58	0.45	0.13	28.9%
Information Access and Delivery (Hours per Week):				
Administrating and locating books for students in electronic reading programs	0.82	0.65	0.17	26.1%
Program Administration (Hours per Week):				
Collection management	2.63	2.35	0.28	11.9%
Program administration total hours per week	23.40	14.51	8.89	61.3%

* Percent difference was calculated by dividing figures in the "highest scoring" column into figures in the "lowest scoring" column.

Library media programs in the 25 top scoring schools exhibited more activity and use, as shown in Table XI.3: more individuals and groups visited the library media center and more individuals received instruction in information skills. These programs also had a larger percentage of flexibly scheduled class visits that allowed for information and technology skills instruction to be integrated into current curricular units. The library media programs in the top scoring schools also had more materials checked out and loaned more items to other library media centers.

Table XI.3. Elementary School Library Media Programs: Program Use per Week

Elementary School Library Media Program Predictors	25 Highest Scoring Elementary Schools	25 Lowest Scoring Elementary Schools	Difference	Percent Difference*
Number of scheduled and unscheduled visits by individuals	102.75	74.60	28.15	37.7%
Number of scheduled and unscheduled visits by groups	22.16	19.32	2.84	14.7%
Administrating and locating books for students in electronic reading programs	0.82	0.65	148.48	699.0%
Number of books checked out	614.48	606.25	8.23	1.4%
Number of items loaned to other library media centers	9.40	6.52	2.88	44.2%
Percent of flexibly scheduled class visits	56.9%	53.2%	3.7	6.9%

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

Library media programs in the top scoring elementary schools had more computers and technology equipment than those in low scoring schools. They had 9.5 percent more computers in the library media center or under its supervision and had 37.8 percent more computers per 100 students. These library media centers also had more technology equipment such as scanners, printers, data projectors, recorders/players and cameras as illustrated in Table XI.4.

Table XI.4. Elementary School Library Media Programs: Technology In or Under Supervision of Library Media Program

Elementary School Library Media Program Predictors	25 Highest Scoring Elementary Schools	25 Lowest Scoring Elementary Schools	Difference	Percent Difference*
Number of computers in library media center	20.08	18.33	1.75	9.5%
Number of computers in library media program per 100 students	8.31	6.03	2.28	37.8%
Number of scanners	1.08	0.83	0.25	30.1%
Number of printers	3.40	3.21	0.19	5.9%
Number of data projectors	2.09	1.26	0.83	65.9%
Number of DVD recorders/players	2.26	1.21	1.05	86.8%
Number of digital cameras	2.63	1.75	0.88	50.3%
Number of video cameras	0.47	0.37	0.10	27.0%

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

There were highly significant demographic and socioeconomic differences between the top performing and the bottom performing elementary schools, as shown in Table XI.5. The lowest performing schools had:

- 15.7 percent more students
- Nearly 60 percent fewer White students
- 7.6 times more minority students
- Eight times more Black students
- 14 times more Hispanic students
- 17 percent more students eligible for subsidized lunch
- Ten times as many students with limited English proficiency

The highest performing schools had:

- 16.7 percent more teachers with five years or more teaching experience
- 14 percent more teachers with Masters or higher degrees

Table XI.5. Elementary School Library Programs: School Characteristics

Elementary School Library Media Program Predictors	25 Highest Scoring Elementary Schools	25 Lowest Scoring Elementary Schools	Difference	Percent Difference
Percent of White students	92.0%	39.0%	53.0	135.9%
Percent Hispanic students	2.0%	28.0%	(26.0)	(7.1%)
Percent of Black Students	3.0%	24.0%	(21.0)	(12.5%)
Percent other minority students	2.0%	8.0%	(6.0)	(25.0%)
Percent total minority students	8.0%	61.0%	(53.0)	(13.1%)
Percent of students with limited English proficiency	2.3%	25.9%	(23.6)	(8.9%)
Percent of students eligible for subsidized lunch program	22.3%	26.1%	(3.8)	(85.4%)
Percent of teachers with at least five years of total experience	84.7%	72.6%	12.1	16.7%
Percent of teachers with masters or higher degrees	46.4%	40.7%	5.7	14.0%
Student enrollment (mean)	260	351	(91)	(74.1%)
Student enrollment (median)	217	328	(111)	(66.1%)

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

** In cases where the “highest scoring” column figure was smaller than the “lowest scoring” column figure, the percentage difference is expressed in () indicating the proportion of the smaller figure over the larger figure.

2. Middle/Junior High School Library Media Programs

In the 25 middle/junior high schools with the highest eighth grade performance on WKCE reading, 47.9 percent of the students scored Proficient and 47.5 percent scored Advanced for a total of 95.4 percent. In the schools with the lowest WKCE reading performance, 46.4 percent scored Proficient and 13.7 percent scored Advanced for a total of 60.1 percent. About 3.5 times more students in the high performing schools scored Advanced than in the low performing schools.

The library media programs in the 25 top middle/junior high schools were better developed than the library media programs in the bottom 25 schools, as shown in Table XI.6. The library media programs in the top schools had:

- Nearly 2.5 times more staff per 100 students
- More than twice the number of paid staff hours per 100 students
- 2.3 times longer operating hours per 100 students
- 73.9 percent more print volumes per student

- 51.9 percent more subscriptions per 100 students
- 19.3 percent more operating dollars per student

Table XI.6. Middle/Junior High School Library Media Programs: Program Development

Middle/Junior High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference
Percent of students Proficient and Advanced	95.4%	60.1%	35.3	58.7%
Percent of students Advanced	47.5%	13.7%	33.8	246.7%
Program Development:				
Library media staff per 100 students	1.48	0.61	0.87	142.6%
Library media staff hours	58.68	57.62	1.06	1.8%
Library media staff hours per 100 students	16.41	7.70	8.71	113.1%
Library media program hours of operation per 100 students	12.50	5.48	7.02	128.1%
Print volumes per student	29.99	17.24	12.75	73.9%
Current subscriptions to newspapers and magazines per 100 students	7.46	4.91	2.55	51.9%
Library media program operating expenditures per student	\$24.76	\$20.76	4.00	19.3%

** Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.*

Library media program staff in the top performing middle/junior high schools spent more time on leadership and collaborative teaching activities than did the library media program staff in the lowest performing schools, as shown in table XI.7. Library media program staff in the top performing schools spent:

- 89.4 percent more time attending faculty meetings
- Twice as much time meeting with the principal
- Nearly three times as much time meeting with colleagues in the district or serving on curriculum planning and management committees
- 41.9 percent more time planning instructional units with teachers
- 25.4 percent more time providing staff development to teachers or other staff
- 17.6 percent more time providing reading incentive activities

- 24.6 percent more time locating books for electronic reading programs and administering the programs.

Table XI.7. Middle/Junior High School Library Media Programs: Leadership and Collaboration

Middle/Junior High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference*
Leadership Activities (Hours per week):				
Serve on school or district planning and management committees	0.50	0.16	0.34	212.5%
Meet with district library media program staff	0.58	0.20	0.38	190.0%
Meet with principal	0.36	0.18	0.18	100.0%
Attend faculty meetings	0.89	0.47	0.42	89.4%
Collaboration-Teaching Activities (Hours per week):				
Planning instructional units with teachers	1.93	1.36	0.57	41.9%
Providing staff development to teachers or other staff	1.48	1.18	0.30	25.4%
Information Access and Delivery (Hours per Week):				
Offering reading incentive activities to students	3.14	2.67	0.47	17.6%
Administering and locating books for students for electronic reading programs	0.76	0.61	0.15	24.6%
Program Administration (Hours per week):				
Collection management	4.48	1.71	2.77	162.0%
Managing library technology	2.93	2.43	0.50	20.6%

* Percent difference was calculated by dividing figures in the "highest scoring" column into figures in the "lowest scoring" column.

Library media centers in the top scoring schools were more dynamic; they had more visits by groups and engaged in more interlibrary loan transactions as shown in Table XI.8.

Table XI.8. Middle/Junior High School Library Media Programs: Library Media Center Use per Week

Middle/Junior High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference*
Number of scheduled and unscheduled visits by groups	25.56	23.96	1.60	6.7%
Number of items loaned to other library media centers	3.04	2.05	0.99	48.3%
Number of items requested from other library media centers	3.50	2.05	1.45	70.7%

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

On average, library media centers in the top performing middle/junior high schools had 39.5 percent more computers per 100 students. They also had 27.4 to 44.0 percent more technology equipment such as scanners and digital cameras as indicated in Table XI.9.

Table XI.9. Middle/Junior High School Library Media Programs: Technology In or Under Library Media Program Supervision

Middle/Junior High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference*
Number of computers in library media program per 100 students	5.47	3.92	1.55	39.5%
Number of scanners	1.72	1.35	0.37	27.4%
Number of digital cameras	0.36	0.25	0.11	44.0%

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

The top and bottom performing middle/junior high schools differed significantly in the composition of their student population, as shown in Table XI.10. The bottom performing schools had:

- 64.4 percent more students, on average
- 19.0 percent more students eligible for subsidized lunch
- Less than half as many White students
- Nearly ten times more minority students
- Nearly twenty times more Black students
- Five times more students with limited English proficiency
- A larger percent of teachers with less teaching experience

Table XI.10. Middle/Junior High School Library Programs: School Characteristics

Middle/Junior High School Characteristics	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference*
Percent of White students	94.0%	41.0%	53.0	129.3%
Percent Hispanic students	2.0%	14.0%	(12.0)	(14.3%)
Percent of Black Students	2.0%	38.0%	(36.0)	(5.3%)
Percent other minority students	1.0%	7.0%	(6.0)	(14.3%)
Percent total minority students	6.0%	59.0%	(53.0)	(10.2%)
Percent of students with limited English proficiency	1.2%	7.3%	(6.1)	(16.4%)
Percent of students eligible for subsidized lunch program	11.5%	14.2%	(2.7)	(8.1%)
Percent of teachers with at least five years of total experience	82.4%	69.6%	12.8	18.4%
Student enrollment (mean)	467	768	(301)	(60.8%)
Student enrollment (median)	416	808	(392)	(51.5%)

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

** In case where the “highest scoring” column figure was smaller than the “lowest scoring” column figure, the percentage difference is expressed in () indicating the proportion of the smaller figure over the larger figure.

3. High School Library Media Programs

In the 25 high schools with the highest 10th grade WKCE reading performance, 19.4 percent of the students scored Proficient and 66.8 percent of the students scored Advanced for a total of 86.2 percent. In comparison, 18.4 percent of the students in the schools with the lowest WKCE reading performance scored Proficient and 25.0 percent of the students scored Advanced for a total of 43.4 percent. Nearly twice as many more students in the 25 highest performing schools scored Advanced than in the bottom 25 schools.

The library media programs in the 25 top scoring high schools had better developed programs than those in the bottom 25 schools, as shown in Table XI.11. The library media programs in the top schools had:

- 66.7 percent more aides and 73.8 percent more aide hours
- 34.7 percent more paid library media program staff
- 29.2 percent more staff hours
- 3.9 percent longer operating hours before and during school

- 13.8 percent more subscriptions
- 77.8 percent more audio materials and 43.8 percent more video/DVD materials
- 14.9 percent more operating dollars per student

Table XI.11. High School Library Media Programs: Program Development

High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference*
Percent of students Proficient and Advanced	86.2%	43.4%	42.8	98.6%
Percent of students Advanced	66.8%	25.0%	41.8	167.2%
Program Development:				
Number of aides	1.60	0.96	0.64	66.7%
Number of aide hours	46.26	26.62	19.64	73.8%
Number of full-time library media program staff	1.64	1.52	0.12	7.9%
Number of staff	2.64	1.96	0.68	34.7%
Number of staff hours	80.93	62.64	18.29	29.2%
Library media hours of operation before and during school	40.54	39.03	1.51	3.9%
Current subscriptions to newspapers and magazines	64.88	57.00	7.88	13.8%
Audio materials	115.52	64.96	50.56	77.8%
Video/DVD materials	880.08	611.92	268.16	43.8%
Library media program operating expenditures per student	\$29.19	\$25.40	3.79	14.9%

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

Library media centers in the top scoring high schools showed greater use in terms of the number of student visits, materials checked out and materials requested from or loaned to other library media centers as shown in Table XI.12.

Table XI.12. High School Library Media Programs: Library Media Center Use per Week

High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference*
Number of scheduled and unscheduled visits by individuals	908.00	411.48	496.52	120.7%
Number of items checked out	195.71	157.68	38.03	24.1%
Number of items loaned to other library media centers	4.28	0.88	3.40	386.4%
Number of items requested from other library media centers	4.42	2.12	2.30	108.5%

* Percent difference was calculated by dividing figures in the "highest scoring" column into figures in the "lowest scoring" column.

Library media program staff in the top scoring high schools spent more time on leadership and collaborative teaching activities than library media program staff in the bottom performing schools, as shown in Table XI.13. They were particularly active in:

- Planning instructional units with teachers
- Identifying and selecting materials for instructional units developed by teachers
- Serving on school or district curriculum planning and management committees
- Attending faculty meetings
- Meeting with colleagues and with the principal
- Managing library technology

Table XI.13. High School Library Media Programs: Leadership and Collaboration

High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference
Leadership Activities (Hours per week):				
Serve on school or district planning and management committees	0.77	0.55	0.22	40.0%
Meet with district library media program staff	1.02	0.51	0.51	85.4%
Meet with principal	0.67	0.33	0.34	103.0%
Attend faculty meetings	1.02	0.60	0.42	70.0%
Collaboration-Teaching Activities (Hours per week):				
Planning instructional units with teachers	2.71	2.09	0.62	29.7%
Information Access and Delivery (Hours per Week):				
Identifying materials for instructional units developed by teachers	4.71	3.45	1.26	36.5%
Total hours on information access and delivery activities	30.57	24.75	5.82	23.5%
Program Administration (Hours per week):				
Managing library technology	5.24	3.76	1.48	39.4%
Total hours spent on library administration	30.77	16.82	13.95	82.9%

** Percent difference was calculated by dividing figures in the "highest scoring" column into figures in the "lowest scoring" column.*

Library media centers in the top scoring high schools had more technology resources in or under the supervision of the library media center, as shown in table XI.14. They had nearly 50 percent more computers and 82.7 percent more laptops available for student use. The top scoring schools also had 36.6 percent more computers in the school that were networked to the library media program resources per 100 students. In addition, the library media centers in the top scoring schools had a wider range of other technology equipment.

Table XI.14. High School Library Media Programs: Technology In or Under Library Media Center Supervision

High School Library Media Program Predictors	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference*
Number of computers in library media center or under its supervision	37.64	25.20	12.44	49.4%
Number of laptops in library media program	16.44	9.00	7.44	82.7%
Number of computers in school with access to networked library media program resources	261.50	244.05	17.45	7.1%
Number of computers in school with access to networked library media program resources per 100 students	25.99	19.03	6.96	36.6%
Number of laptops in school with access to library media center networked resources	30.30	21.68	8.62	39.8%
Number of scanners in library	1.44	0.68	0.76	111.8%
Number of printers in library	3.40	2.57	0.83	32.3%
Number of data projectors in library	4.40	1.76	2.64	150.0%
Number of DVD recorders/players in library	6.72	3.92	2.80	71.4%
Number of VCR recorders/players in library	19.20	9.13	10.07	110.3%
Number of digital cameras in library	3.16	1.13	2.03	179.6%
Number of video cameras in library	2.68	2.28	0.40	17.5%

* Percent difference was calculated by dividing figures in the "highest scoring" column into figures in the "lowest scoring" column.

The socioeconomic differences between these two groups of high schools were significant, as shown in table XI.15. The bottom performing high schools had:

- 17.3 percent more students
- More than six times as many minority students
- 57.3 percent more students eligible for the subsidized lunch program
- Nearly ten times as many Black students
- 7.7 percent fewer teachers with five years or more of teaching experience

Table XI.15. High School Library Media Programs: School/Community Characteristics

High School Characteristics	25 Highest Scoring Schools	25 Lowest Scoring Schools	Difference	Percent Difference
Percent of White students	92.0%	50.0%	42.0	84.0%
Percent Hispanic students	2.0%	9.0%	(7.0)	(22.2%)
Percent of Black Students	3.0%	32.0%	(29.0)	(9.4%)
Percent other minority students	3.0%	7.0%	(4.0)	(4.3%)
Percent total minority students	8.0%	50.0%	(42.0)	(16.0%)
Percent of students with limited English proficiency	0.9%	4.0%	(3.1)	(22.5%)
Percent of students eligible for subsidized lunch program	8.9%	14.0%	(5.1)	(63.6%)
Percent of teachers with at least five years of total experience	82.7%	76.3%	6.4	8.4%
Student enrollment (mean)	940	1,103	(163)	(85.2%)
Student enrollment (median)	896	1,162	(266)	(77.1%)

* Percent difference was calculated by dividing figures in the “highest scoring” column into figures in the “lowest scoring” column.

** In case where the “highest scoring” column figure was smaller than the “lowest scoring” column figure, the percentage difference is expressed in () indicating the proportion of the smaller figure over the larger figure.

APPENDIX A:
QUESTIONNAIRE

WISCONSIN PUBLIC SCHOOL LIBRARY QUESTIONNAIRE

I. IDENTIFYING INFORMATION

Please identify your school by name, level, and district. Provide contact information for the individual who is responsible for completing this survey.

If your school has more than one library within the school, please provide information for only one library and record whether this library serves elementary, middle/junior high, or high school students. Complete a separate survey for each different school library that you serve in your district.

101. School Name: _____

102. District Name: _____

103. School Level: **(CIRCLE ONE ONLY)**

- 1 Elementary
- 2 Middle/Junior High
- 3 High school
- 4 Combined: Elementary-Middle/Junior High
- 5 Combined: Middle/Junior High and High School
- 6 Combined: Elementary-Middle/Junior High-High School

104. Grade levels: **(CIRCLE ALL THAT APPLY)**

K 1 2 3 4 5 6 7 8 9 10 11 12

105. Does your school have more than one library?

- 1 Yes
- 2 No **(SKIP TO Q.6)**

105a. If yes, the library for which you are providing information is the library serving:
(CIRCLE ALL THAT APPLY)

- 1 Elementary school
- 2 Middle/Junior high
- 3 High school

106. Name of Respondent: _____ Position _____

107. Phone Number: _____ Fax: _____

E-mail: _____

II. LIBRARY MANAGEMENT

201. What is the total seating capacity of the library? _____

201a. What is the library size in square feet? _____

202. Can the library accommodate a full class of students at one time?

1 Yes 2 No

202a. When a full class of students is working in the library, can other activities be accommodated concurrently?

1 Yes 2 No

203. Do you prepare and submit an annual school library budget request to your school administration?

1 Yes 2 No

203a. Is your budget determined on a: **(CHECK ONE ONLY)**

- 1 Per student basis
- 2 Educational need basis determined by library media specialist and other staff
- 3 Administrative formula
- 4 Other **(SPECIFY)** _____

204. Is there regular communication between your library staff and... **(ANSWER YES OR NO TO EACH)**

	Yes	No
Local public library	1	2
College/university library	1	2
Special library (i.e. hospital, business, CCBC, state agency)	1	2
Other school libraries in the district	1	2
Other school libraries outside the district	1	2

205. Does your school district/library have a school board approved: **(ANSWER YES OR NO TO EACH)**

	Yes	No
Copyright policy	1	2
Resource sharing/ILL policy	1	2
Internet use/Acceptable use policy (AUP)	1	2
Collection development policy	1	2 (IF NO, GO TO Q.7)

206. If you have a collection development policy, does it address: **(ANSWER YES OR NO TO EACH)**

	Yes	No
Materials selection	1	2
Weeding	1	2
Reconsideration of challenged materials	1	2

207. Do you have a library policy and procedures manual?

1 Yes 2 No **(SKIP TO Q.8)**

207a. Is this policy and procedures manual approved by the district school board?

1 Yes 2 No

208. Do you have a library advisory committee that includes teachers, parents, administrators and/or community members?

1 Yes 2 No

209. Does your school library have a summer reading program?

1 Yes 2 No

210. Does your library or school work cooperatively with your local public library to promote student participation in a summer reading and/or other reading incentive programs at a local public library?

1 Yes 2 No

211. Is your library responsible for coordinating **distance learning**? Distance learning includes lessons for students and staff development for teachers or library media specialists taught via television, satellite or a computer network handled or coordinated through the library.

1 Yes 2 No

212. Does your district have a district library media director (91 certification)? (**CHECK ONE ONLY**)

- 1 Yes, full-time
- 2 Yes, part-time, **SPECIFY PERCENT OF TIME:** ____%
- 3 No district library media director

213. Is the school library program represented on the following committees? (**CHECK YES, NO OR NOT APPLICABLE FOR EACH**)

	Yes	No	Not Applicable
School/District Improvement Plan committee(s)	1	2	3
School/District Technology Committee(s)	1	2	3
School/District Curriculum committee(s)	1	2	3

214. Do you belong to the following associations/organizations? (**CHECK YES OR NO FOR EACH**)

	Yes	No
State professional school library association	1	2
State school technology association	1	2
National professional school library association	1	2
National school technology association	1	2

215. Do you provide regular communication about your library media program and services to teachers, administrators, parents and community members?

1 Yes 2 No

216. Does the building principal demonstrate support for the library media program?

1 Yes 2 No

217. Do you meet regularly with the building principal to discuss the library media program?

1 Yes 2 No

III. LIBRARY STAFF

301. Please report the number of paid staff and the number of volunteers for your library, by staff category, full-time or part-time, number of persons in each category (adding part-time and full-time persons for each category), and the total number of person hours in a typical week for each staff category. **Do not report more than 40 hours per week per person. Count each person only once.**

For example, if you have 3 paid professional staff, one is full-time working 40 hours a week and two are part-time working 20 hours a week each, record "1" in the Full-time column, "2" in the Part-time column; "3" in the "Number of Persons" column, and "80" (adding 40+20+20) in the "Total Number of Person Hours per Week" column.

Library Staff Categories	Number who are Full-time	Number who are Part-time	Number of Persons (head count, not FTEs)*	Total Number of Person Hours per Week
301a. Library media specialists with DPI library media certification				
301b. All other paid library staff (include aides or clerical staff)				
301c. Total (for Paid Staff)				
301d. Adult volunteers (per typical week)				
301e. Student volunteers (per typical week)				
301f. Total (for Volunteers)				

* FTE refers to Full Time Equivalent as determined by your district.

302. Please record in the table below the number of *paid staff* in your library by level of education and credentials. Count each person only once.

Highest Education and Certification of <u>Paid</u> Library Staff	Number of Persons
Master's degree or higher with teacher and school library science certification	
Master's degree with teacher certification but not school library certification	
Master's degree without teacher certification	
Bachelor's degree with teacher and school library science certification	
Bachelor's degree with teacher certification	
Bachelor's degree without teacher certification	
Less than Bachelor's degree (associate degree, high school diploma)	
TOTAL (for Paid Staff)	

303. Are you currently working under emergency/provisional licensure?

1 Yes 2 No.

304. Does the library media specialist with primary responsibility for this library also work regularly in another school library?

1 Yes 2 No (**SKIP TO SECTION IV, Q.1**)

304a. In how many libraries does the library media specialist work? _____

304b. How many hours does the library media specialist work in **this** library a week? _____

IV. SERVICE HOURS PER TYPICAL WEEK

401. Please record the typical weekly number of hours that this school library is open for use.

Library Hours	Hours per Typical Week
401-1. Hours library is open per typical week during school hours	
401-2. Hours library is open per typical week before school hours	
401-3. Hours library is open per typical week after school hours (including weekends)	
401-4. Hours library is open per typical week in the summer	
401-5. Hours library is open to the community	

V. STAFF ACTIVITIES PER TYPICAL WEEK

501. Library staff engages in a wide variety of activities each week. Please record your best estimate of the number of hours you and other paid staff spend on each activity in a typical week. *Include all paid staff hours, not just paid professional staff hours.*

If library staff does not engage in some activities weekly, please estimate the number of hours spent on that activity in a typical month and divide by four or estimate it for a year and divide by the number of weeks per year the library is open.

Activities Performed by <u>Paid</u> Library Staff	Number of Person Hours per Typical Week
Learning and Teaching	
501-1. Hours spent weekly planning instructional units with teachers	
501-2. Hours spent weekly teaching collaboratively with teachers	
501-3. Hours spent weekly assessing collaborative student projects	
501-4. Hours spent weekly providing staff development to teachers or other school staff (includes informal one-on-one and formal group sessions)	
501-5. Hours spent weekly teaching information skills and technology literacy to students individually or in groups (e.g. citations, copyright, critical thinking, evaluation of sources)	
501-6. Hours spent weekly providing technology literacy instruction and training to parents and community members	
Information Access and Delivery	
501-7. Hours spent weekly performing basic library activities (e.g. checking in and out, re-shelving, processing, retrieving)	
501-8. Hours spent weekly identifying materials for instructional units developed by teachers	
501-9. Hours spent weekly offering reading incentive activities for students (e.g. book talks, story times, reader's advisory services, author visits)	
Program Administration	
501-10. Hours spent weekly on collection management (e.g. selection inventory, weeding)	
501-11. Hours spent weekly managing library technology (e.g. computers, computer network, automation)	
501-12. Hours spent weekly administering and locating books for students for electronic reading programs such as Accelerated Reader and Electronic Bookshelf	
501-13. Hours spent weekly meeting with other library staff from the building and/or district	
501-14. Hours spent weekly serving on building and/or district planning and management committees	
501-15. Hours spent weekly meeting with the principal and/or other building or district administrators	
501-16. Hours spent weekly attending faculty and/or staff meetings and in-services	
501-17. Hours spent weekly performing duties unrelated to school library services (e.g. monitoring recess, lunch, restrooms, buses)	
501-18. TOTAL	

VI. LIBRARY USE PER TYPICAL WEEK

601. Please record information in the table below for each of the types of library use in a typical week.

If these figures must be estimated and it is easier to estimate them for a month or year, please do so. If you estimate for a month, please divide by four. If you estimate for a year, please divide by the number of weeks your library is open annually.

Library Use in a Typical Week	Number
601-1. Number of scheduled and unscheduled visits to the school library by individuals (students, teachers, administrators, parents, other)	
601-2. Number of scheduled and unscheduled visits to the school library by classes or other groups (groups of teachers, administrators, parents, or others)	
601-3. Number of scheduled or unscheduled information skills instruction contacts with individuals (students, teachers, administrators)	
601-4. Number of scheduled or unscheduled information skills instruction contacts with classes or groups (groups of teachers, administrators, parents, or others)	
601-5. Total number of books and other materials checked out during the most recent full week	
601-6. Number of materials used in the library (estimate based on re-shelving count)	
601-7. Number of items loaned by this library to other libraries in or outside the district	
601-8. Number of item requested by this library from other libraries in or outside the district	

602. In a typical week, what percent of the classes that visit the library are:

A. Flexibly scheduled (e.g. scheduled for varying time periods according to need): _____%

B. Regularly (fixed) scheduled (e.g. scheduled for previously specified times): _____%

603. Is the library schedule used to provide other teachers with release or preparation time?

1 Yes 2 No

VII. LIBRARY TECHNOLOGY

701. Please record the following information in the table below. Please distinguish between the number of computers in your school that are located in or under the supervision of your library (Column A in table) and computers from which networked library resources may be accessed (Column B in table).

Computers under the supervision of the library but not in the library may include those in a separate computer lab. These should be counted together with the computers located in the library (Column A). Do not include non-networked library computers from which networked library resources cannot be accessed.

Computers from which networked library resources may be accessed may be located in classrooms, administrative offices, a separately administered computer lab, mini-lab, or any other school space not under the supervision of the library (Column B).

701. Number of Electronic Equipment	Column A Number Located in or under Library Supervision	Column B Number in School from which Networked Library Resources May be Accessed
701a. Total Number of computers		
701b. Total number of laptops (including AlphaSmarts)		
701c. Total number of scanners		
701d. Total number of printers		
701e. Total number of computers and laptops with accommodations for students with disabilities		
701f. Total number of data projectors (LCDs)		
701g. Total number of DVD recorders/players		
701h. Total number of VCR recorders/players		
701i. Total number of TVs		
701j. Total number of digital cameras		
701k. Total number of video cameras		
701l. Total number of PDAs (including Palm, Pocket PC, iPods,)		

702. How many Internet connected and stand-alone computers and laptops are in a typical classroom in your school? _____

703. How many of them are connected to the Internet? _____

704. How many computer labs does your school have? _____

704a Of those labs, how many are mobile labs? _____

705. How many computers and laptops are in your computer labs (total for all labs):

706. Who supervises the computer labs? (**CHECK ALL THAT APPLY**)

- 1 Library media specialist
- 2 Teacher
- 3 Para-professional
- 4 Other (**SPECIFY**): _____

707. Does your school have a distance-learning classroom?

- 1 Yes
- 2 No (**SKIP TO Q.708**)

707a. Who coordinates the distance-learning classroom? (**CHECK ONE ONLY**)

- 1 Library media specialist
- 2 Teacher
- 3 Para-professional
- 4 Other (**SPECIFY**): _____

708. Does your school have a mobile distance-learning system?

- 1 Yes
- 2 No (**SKIP TO Q.9**)

708a. Who is responsible for the mobile distance-learning system? (**CHECK ONE ONLY**)

- 1 Library media specialist
- 2 Teacher
- 3 Para-professional
- 4 Other (**SPECIFY**): _____

709. Does your school provide video editing, AV production and/or broadcast services?

- 1. Yes
- 2. No (**SKIP TO SECTION VIII, Q.1**)

709a. Who is responsible for providing or coordinating these services? (**CHECK ONE ONLY**)

- 1 Library media specialist
- 2 Teacher
- 3 Para-professional
- 4 **Other** (**SPECIFY**): _____

VIII. LIBRARY COLLECTION

801. Please record information on all your holdings (in or not in circulation) available for use by teachers and/or students

Collection	Number
801-1. Books (print volumes, including encyclopedias and reference)	
801-2. Current print subscriptions to periodicals, newspapers, magazines, journals	
802-3. Electronic subscriptions (received through Internet access)	
801-4. Encyclopedias and reference titles on CD ROM	
801-5. Audio materials (cassettes, CDs, LPs)	
801-6. Video/DVD materials (cassettes, disks, and laser discs)	
801-7. e-Books	
801-8. Computer software packages circulated to students and staff	

802. What is the average age of your library's print **non-fiction** collection? _____

803. What library automation (catalog and circulation) system do you have? _____

804. Do you have an online public access catalog (OPAC)?

1 Yes 2 No (**SKIP TO Q.805**)

804a. Is your Online Public Access Catalog (OPAC) accessible from: (**ANSWER YES OR NO TO EACH**)

	Yes	No
All school computers	1	2
More than 50% of school computers	1	2
Outside of the school	1	2

805. Are any of your licensed online databases accessible from: (**ANSWER YES OR NO TO EACH**)

	Yes	No
Classrooms	1	2
All school computers	1	2
More than 50% of school computers	1	2
Teachers' home computers	1	2
Students' home computers	1	2

806. Does your library have a link to BadgerLink on your library or school web page?

1 Yes 2 No

807. Is instruction in the use of BadgerLink databases part of your library instructional skills program?

1 Yes 2 No

808. Have you introduced BadgerLink to administration and faculty through staff development?

1 Yes 2 No

809. Do you assist teachers in using the DPI Curriculum Resource Center (CRC) and MarcoPolo (www2.dpi.state.wi.us/crc) when they plan lessons?

1. Yes 2. No

IX. LIBRARY OPERATING EXPENDITURES AND CAPITAL OUTLAY

901. Please report your library's expenditures, capital outlay and totals for 2004-05, including funds from both the school budget and other sources (e.g. grants, book fairs PTAs).

2004-05 Operating Expenditures	School Budget	All Other Sources
901a. Books (print) (432)		
901b. Newspapers (433)		
901c. Periodicals/magazines (434)		
901d. Reference materials (439)		
901e. Electronic format materials: instructional software including online database subscriptions (435)		
901f. Non-print materials: audiovisual and e-Books (431), microform (438)		
901g. Other operating expenditures, including general supplies (411)		
901h. Dues and fees such as WISCAT fee AR, professional associations (940)		
901i. TOTAL Operating Expenditures		
2004-05 Capital Outlay	School Budget	All Other Sources
901j. Equipment (computers, peripherals, VCRs), including purchase, additions, rental, and replacement		
901k. Other capital purchases: furniture, shelving		
901l. Other miscellaneous		
901m. TOTAL Capital outlay		

THANK YOU for completing the questionnaire!