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Connecting British Columbia (Canada) School Libraries and Student Achievement: A Comparison of Higher and Lower Performing Schools with Similar Overall Funding

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Research over time has established associations between components of the school library and student achievement. This study was designed to investigate these associations in schools in British Columbia (Canada) where the government provides equitable funding of public schools while allowing individual school districts and schools to determine individual funding priorities. Findings replicated what numerous previous studies have shown: higher student standardized test scores were associated with a school library that is more accessible, better funded, professionally staffed, managed, stocked, integrated and used. Findings moreover pointed to higher student achievement in those schools where greater resources, from the same limited allocation were assigned to school libraries. Results of this study are of practical interest to policy makers, school and library administrators, and educators with a vested interest in student achievement and the future of school libraries.

Introduction and Background

There have been numerous studies examining the connection between student achievement and various components of the school library's resources or services. The results of these studies have been summarized and synthesized in reports based in Australia, Canada and the United States, among others. (See, e.g., Haycock, 2003; Lance & Loertscher, 2003; Lonsdale, 2003.) This study builds on these earlier reports by examining higher and lower performing schools in a jurisdiction where funding is equitably allocated by the provincial/state government to local jurisdictions and where program funding decisions are based on local priorities. The question emerges then whether student achievement is higher in those schools where greater resources, from the same limited allocation, have been assigned to school libraries.

Research into Student Achievement

There has been extensive research examining the relationship between and among literacy, student achievement, and the school library program. Between 1990 and 1991, for example, the International Association for Evaluation of Educational Achievement (IEA) Reading Literacy Study (Elley, 1994; Froese, 1997) examined the types of resources available at the primary/elementary-school levels of 27 participating countries. The study explored the connections between resources and achievement, focusing on school and classroom libraries, their descriptions and uses, and on classroom teachers' practices as they relate to library use. Findings suggested that students in classrooms with access to libraries achieved higher than those who did not; students who have many books at home achieved at higher levels than those who did not.

  Other studies demonstrated the association between school libraries and student achievement as well. Research in Texas found that library variables explained about four percent of the variance in test performance at the elementary and junior high levels, and just over eight percent at the high school level (Smith, 2001). Studies in Colorado (Lance, n.d.; Lance, Welborn, &

Hamilton-Pennell, 1993; Lance, Rodney, & Hamilton-Pennell, 2000a) also revealed that among predictors of academic achievement, the size of the school library staff and collection was second only to the absence of at-risk conditions in terms of poverty and low adult educational attainment. Findings from this study pointed to the importance of school library resources, enabling technologies and the role and presence of the teacher-librarian. Well-stocked and well-equipped school libraries went hand in hand with qualified and motivated professional staff leading students who were capable, avid readers and who were information literate (Haycock, 2003). Standardized test scores tended to be 10-20% higher than in schools without this investment (Lance & Loertscher, 2003).

More than 20 studies in the United States and Canada (see Klinger et al., 2009; Lance, Hamilton-Pennell, Rodney, Petersen & Sitter, 1999; Lance, Rodney & Hamilton-Pennell, 2000b, 2002; Smith, 2001) examined the role and presence of the teacher-librarian in high-performing schools, concluding that teacher-librarian time, schedules and collaboration with teaching colleagues were associated with higher test score outcomes. A study similar to this one was undertaken earlier in Ohio to evaluate the achievement levels of students in the top 50 and bottom 50 Ohio school districts in terms of amount spent per pupil on instruction and the proportion of instructional expenditures committed to school libraries. The results indicated a positive association between commitment to the library through funding and student achievement levels (Bruning, 1994).

It must be noted of course that these are correlational studies, exploring an association between teacher-librarian behaviors and school library support, rather than cause and effect. Similarly, there are many variables not considered in these studies, which may be more significant in associations with achievement, e.g., parent education and family poverty, or may not be more significant in associations with achievement, e.g., class size and teacher seniority.

> [Nevertheless,] in research done in nine [now more than 20] states and over 3,300 schools since 1999, the positive impact of the school library program is consistent. [They] make a difference in academic achievement. If you were setting out a balanced meal for a learner, the school library media program would be part of the main course, not the butter on the bread (Lance & Loertscher, 2003, p.64).

Design Plan and Study Parameters

Research Questions
The goal of the study was to determine the impact, if any, of the school library on student achievement in British Columbia (BC), Canada. Research questions posed were:

- To what extent are school library support and program components associated with student outcomes measured by provincial standardized test scores on reading literacy?
- What is the nature and extent of school library support (e.g., staff allocation, budget) and school library program components (e.g., roles, collections size, hours of access, integration of technology, scheduling) in the top and bottom performing schools in British Columbia?
- What are the characteristics of school libraries in high performing schools?
- Assuming that BC public schools receive equitable per-student allocation of district funds and that allocation of those funds for use in school libraries is subject to local control, then to what extent does school/district decision-making to allocate resources to school libraries impact student achievement?

Methodology
The study design incorporated standardized data on student achievement collected from government and private sources as well as school library survey data collected from public and private schools in BC. The BC data model examined school library and test score data while controlling for district-based funding to public schools. Independent schools, subject to identical provincial performance standards yet receiving varied resource allocation, were included in the study. The questionnaire, which was adapted with permission from the Keith Curry Lance Colorado Study (Lance, Rodney, & Hamilton-Pennell, 2000a) collected data on library staffing,

paid staff activities, library activities, the collection itself, technology access and operating expenditures.

Survey scope. Questionnaires were sent to the top and bottom ranked elementary and secondary school libraries based on educational attainment from the BC Ministry of Education Foundation Skills Assessment (FSA) scores, which were translated into rankings by the Fraser Institute, a non-profit independent, international research and educational organization. (See: http://www.fraserinstitute.org/report-cards/school-performance/british-columbia.aspx).

Population and sample. Top and bottom schools were identified and sampled based on Fraser Institute rankings. Three hundred questionnaires were sent to the top and bottom 100 elementary schools and to the top and bottom 50 high schools, both public and independent.

Field period. Questionnaires were mailed the first week of March 2003 and returned over a four-week period. Follow up calls were made for non-returned questionnaires.

Response rate. Eighty four (28%) validated questionnaires were returned. Low-performing independent schools were noticeably under-represented with only two schools returning the questionnaire. High performing public high schools also had a low return rate compared with lower performing high schools.

School measures. Information used in this study is from the 2001/2002 ranking results (Cowley & Easton, 2003a, 2003b), including Grade 4 and Grade 7 FSA reading comprehension scores. Grade 10 FSA scores and results of the Grade 12 provincial examinations were included for the high school rankings.

Library measures. Data were compiled from 52 library predictor variables replicated from previous studies; these have been clustered in seven categories:

1. Access - library hours of access per week.
2. Staffing - staff headcount and hours per week.
3. Paid staff activities - respondents' itemized total time per week spent on leadership, administrative, instructional, information support and other typical library activities.
4. Usage - by individuals or groups, scheduled or unscheduled, and circulation of materials.
5. Information and communication technology access - Internet and catalogue access via the library and elsewhere; computers under library supervision; computers located elsewhere with Internet access; catalogue and library database access.
6. Library resources - holdings by format (books, CD-ROM or disk reference titles, periodical subscriptions, software, audio and video materials).
7. Annual budget and expenditures - amount spent on print and other resources, estimated district purchases, budgets from school and parent fundraising.

Study controls. Public school districts in British Columbia each receive an equitable allocation of funds per student. Separate controls were used to analyze independent schools, which have variable per-student funding.

Limitations. The BC model does not control for school size or community differences such as community wealth, adult educational attainment or minority presence. Therefore it is not known to what degree observed associations are impacted by differences in school size or any other variable external to the study.

Statistical treatment. The relationship between school achievement and surveyed library indicator variables were explored through mean score and chi-square distribution differences among high and low achieving schools. Significant variables associated with school performance were screened in SPSS using both Analysis of Variance [ANOVA] and Pearson's chi-square. The statistical significance of the relationship of any given variable to school performance is provided

through the probability (*p*) that corresponds to either an ANOVA and/or chi square result. It is recognized that there will be variability around any given estimate due to normal sample error.

Discussion and Implications

Overall Findings

Findings from a study among schools in British Columbia reinforce previous research suggesting that an easily accessed, well-funded, well-staffed, well-managed, well-stocked, integrated and heavily used school library correlated to higher student achievement. Over 20 library predictor variables were identified as being statistically related to school and student achievement in British Columbia. These included access, staffing, collection, networked technologies, outreach and partnerships with teachers and students, as well as integration and use of the school library.

For further insight, results for this study were analyzed using data from independent and public schools in combination and then separately since independent schools in British Columbia were more likely to include higher achieving students. Table 1 summarizes the study findings for all schools by library measure and school performance levels. The statistical significance for each library measure variable is reported with the margin of error (*p*) and the corresponding ANOVA F statistic and/or chi square (χ^2), and degrees of freedom (*df*).

Public School Results

Table 2 illustrates the statistical relationship between library measures and student achievement among public schools in British Columbia. Significant relationships were found in the following areas:

Access. Public school libraries that were open longer than normal school hours were more likely to be associated with high student achievement. Public schools with high student performance were open on average 6.7 extra hours per week versus libraries in low performing schools that were open 5.1 extra hours per week.

Volunteers. School library volunteers, whether adult or student, were nearly twice as likely to be found at high performing public schools than at low performing schools: an average of 19.2 volunteers versus 10.9 volunteers.

Staffing. Total staff (including volunteer staff) at high performing public school libraries was markedly higher than at low performing public school counterparts, with nearly three times as many staff members at high performing school libraries (on average 18.4 staff versus 6.5 staff).

Time allocation and teacher partnerships. Time spent on reading incentive activities and identifying materials for teachers was also greater at high performing public school libraries. Library staff at lower performing schools spent a third more time allocated to fixed schedule tasks (considered a detriment to providing value-added activities): on average 57.4% of their time versus 43.5% of time for teacher-librarians in high performing public schools.

Usage. School library usage was much greater in public schools with high student achievement compared with public schools with low student achievement—though how much of this was due to differences in school size is not known. High performing schools had more group and individual visits and contacts. The average number of individual visits to the library was markedly higher for higher performing schools (1001.7 versus 416.5); the average number of individual information skill contacts per week was higher for high performing schools (174.2 versus 74.6). Similarly, information skills group contacts per week were significantly higher for schools with high student achievement (on average 17.3 versus 8.5) as was the number of group visits to the library per week (18.8 versus 14.1).

Technologies. Networked technologies were significantly higher: 63.2 computers with catalogue access at high performing schools versus 26.5 for low performing schools.

Funding. Budget from school and parent fundraising activities was more than 75% higher ($2,500 versus $1,400) for libraries at high performing public schools —though how much of this was due to differences in school size is not known.

Table 1: Significant relationships between library measures and achievement in all BC schools (*N*=Total BC Schools)

Library Measure	*N*	Mean	High Performing	Low Performing	*p**	Statistic
Access						
Hours open per week during school hours	80	23.3	26.0	20.8	.016	F6.06
Hours closed per week during school hours	74	4.2	3.0	5.5	0.059	F3.68
Hours open per week outside school hours	77	6.8	8.6	5.2	.003	F9.54
					.004	$\chi^2$17.23 *df*5
Staffing						
Hours of TL staffing	83	23.7	29.2	18.3	.001	F11.13
					.049	$\chi^2$11.14 *df*5
Hours qualified TL staff	63	24.4	29.5	19.5	.009	F7.18
					.023	$\chi^2$13.06 *df*5
Hours clerical technical staff	50	17.0	24.7	12.03	.001	F12.36
					.003	$\chi^2$13.78 *df*3
Number of volunteer staff	50	16.9	20.2	11.4	*.005*	$\chi^2$13.05 *df*3
Number of total staff	83	11.7	16.9	7.0	.005	F8.28
					.000	$\chi^2$24.42 *df*4
Total staff hours per week	81	44.2	57.9	31.5	.001	F10.88
Hours TL conducts school activities	83	27.8	32.4	23.3	.020	F5.63
Partnerships and Outreach						
Hours TL administers reading incentive activities	72	3.0	3.9	2.0	.004	F8.62
Hours TL identifies material for teachers	76	2.0	2.8	1.3	.001	F11.51
					.002	$\chi^2$17.45 *df*4
Usage						
Number of group visits to library per week	83	16.7	19.9	13.8	.002	F10.58
					.011	$\chi^2$14.94 *df*5
Information skills group contacts per week	65	10.5	13.1	8.3	.035	F4.62
Approximate numbers of items circulated	72	437.2	516.0	362.7	.043	F4.24
Networked Technologies						
Number of library computers with Internet access	83	9.7	11.7	7.7	.045	F4.15
Number of library computers with catalogue access	80	7.7	10.0	5.5	.016	F6.04
Number of school computers with catalogue access	67	47.1	71.4	26.1	.003	F9.34
Large Current Collection						
Number of books of all types	76	13,000	15,000	12,000	.016	F6.07
					.011	$\chi^2$14.75 *df*5
Average publication year for books of all types	48	1992	1994	1990	.028	F5.12
Amount spent on print resources	75	$8400	$11,700	$4900	.001	F11.05
					.006	$\chi^2$16.50 *df*5
Amount spent on other resources	76	$2600	$3800	$1400	.005	F8.51
Adequate Funding						
Budget from school and/or parent fundraising	56	$4100	$6100	$1800	*.032*	$\chi^2$12.20 *df*5

*Results indicate significant one-way ANOVA and/or χ^2. [χ^2 *p* denoted in italics]

Table 2: Significant relationships between library measures and student achievement in BC public schools (*N*=Total BC public schools).

Library Measure	N	Mean	High Performing Schools	Low Performing Schools	p*	Statistic
Access						
Hours open/week outside school hrs	56	5.6	6.7	5.1	*.060*	$\chi^2$10.59 *df*5
Staffing						
Number of volunteer staff	35	15.2	19.2	10.9	.006	$\chi^2$12.56 *df*3
Total staff	60	10.3	18.4	6.5	.004	F8.84
					.000	$\chi^2$28.23 *df*4
Partnerships and Outreach						
Hours TL administers reading incentive activities	52	2.3	2.9	1.9	.062	F3.66
Hours TL identifies material for teachers	55	1.5	1.9	1.3	*.036*	$\chi^2$10.27 *df*4
Usage						
Number of individual visits to library per week	59	614.9	1001.7	416.5	*.029*	$\chi^2$12.49 *df*5
Number of group visits to library per week	61	15.6	18.8	14.1	.030	F4.95
Number of individual information skills contact per week	54	107.8	174.2	74.6	*.026*	$\chi^2$12.73 *df*5
Information skills group contacts per week	47	11.1	17.3	8.5	.003	F10.03
Networked Technologies						
Number of school computers with catalogue access (*N*=51)	51	38.8	63.2	26.5	.021	F5.65
Large Current Collection						
Number of books of all types (*N*=53)	53	13,000	14,000	12,000	*.053*	$\chi^2$10.91 *df*5
Adequate Funding						
Budget from school and/or parent fundraising (*N*=43)	43	$1900	$2500	$1400	.034	F4.82
Flexible Scheduling						
Percent of library schedule allocated to fixed schedule (*N*=33)	33	51.9	43.5	57.4	*.052*	$\chi^2$10.96 *df*5

*Results indicate significant one-way ANOVA and/or χ^2. [χ^2 *p* denoted in italics]

Comparisons between public and independent schools

Results tracked similarly when considering independent schools in the analysis, although taken as a whole, the magnitude of differences in mean scores between high and low performing independent schools were higher than the magnitude of difference observed in public schools. Resources that most differentiated performance between independent and public schools included the hours of access to the library, more staff hours and more qualified teacher-librarian staff hours, quality teacher-librarian time spent on reading incentives and material selection, school/parent fundraising, and spending on print and other resources. FSA rankings also were higher for both high and low achieving independent schools and skewed higher than those of the public schools. Independent schools were nearly three times as likely as public schools to be high achieving schools—32.8% of public schools as compared to 91.3% of independent schools. Their incidence among high achieving schools of 51% is nearly twice as much as their incidence in the sample overall of 27%, as illustrated in Table 3.

Higher school performance among independent schools as measured by a higher FSA ranking was related to library performance variables that pointed to more accessible, better-staffed, well-stocked and well-used libraries. These, then, are the combined results of public and independent schools:

Access. Overall, schools with libraries open more hours per week during and outside of school hours were more likely to be higher achieving schools. During school operating hours, libraries at high performing schools were open 25% more hours on average than libraries at low performing schools: an average of 26 hours during school per week versus 20.8 hours per week. Outside of school, on average, libraries at high performing schools were open nearly 65% more hours than low performing schools: an average of 8.6 hours versus 5.2 hours.

Staffing. School libraries managed by qualified professional staff and supported by clerical and volunteer staff were more likely to be associated with higher school performance. Libraries with more qualified school librarian hours, more paid clerical and technical staff hours, a larger number of volunteers and total number of staff were more likely to be associated with high school performance. At high performing schools, libraries were staffed with teacher-librarians for 29.2 hours per week versus 18.3 hours at low performing schools. Volunteers were more likely to be found at high performing school libraries than in low performing school libraries: an average of 20.2 volunteers versus 11.4. Total library staff hours per week were nearly double for high performing schools, with an average of 57.9 hours versus 31.5 staff hours per week for low performing schools.

Partnerships and outreach. Schools in which teacher-librarians were spending more hours offering student reading incentives, providing more information skill group contacts per week, and identifying materials for teachers were more likely to be higher achieving schools. High performing school teacher-librarians spent an average of 3.9 hours per week on reading incentive activities, twice that of counterparts at low performing schools. High performing school teacher-librarians also spent 2.8 hours per week identifying materials for teachers, more than double that of counterparts at low performing schools.

Usage. School libraries seeing more group visits per week and more items circulating per week were more likely to be at higher achieving schools—though how much of this is due to differences in school size is not known. High performing school libraries received an average of 19.9 student group visits per week versus 13.8 at low performing school libraries. Teacher-librarians at high performing schools had an average of 13.1 information skills group contacts per week versus 8.3 at low performing schools. And circulation numbers were 42% higher at schools with better school achievement.

Networked technologies. Schools with a greater number of library and school computers with catalogue access, and schools with a greater number of library computers with Internet access were more likely to be higher achieving schools. Libraries at high performing schools had 52% more computers with Internet access and nearly twice as many computers with library catalogue access. Even more profound, high performing schools offered nearly three times as many computers with school-wide library catalogue access than low performing schools.

Large current collection. Schools with libraries stocked with a large collection of books of all types and with more current materials were more likely to be higher achieving schools—though how much of this is due to differences in school size is not known. Libraries at high performing schools held an average of 15,000 items in their collections versus 12,000 at low performing schools, and their holdings on average were nearly four years newer as well. Spending on print resources at high performing schools was more than double that at low performing school libraries: $11,700 versus $4,900. Spending on other resources followed suit: $3,800 at high performing school libraries versus $1,400 at low performing school libraries.

Adequate funding. Additional buying power such as that derived from school and parent fundraising was related to school achievement as indicated by the combined results of public and independent schools. School/parent fundraising at high performing schools far outnumbered funds raised at low performing schools, with $6,100 versus $1,800 annually—though how much of this is due to differences in school size is not known.

Table 3 depicts comparisons of incidence between high performing and low performing schools and provides an index of the comparison.

Table 3: Incidence comparisons between high performing and low performing schools.

	Overall Sample Incidence	High Performing Incidence	Low Performing Incidence	High Performing Index	Low Performing Index
Number of schools	*N*=84	n=41	n=43	n=41	n=43
Public schools	72.6%	48.8%	95.3%	67	131
Independent schools	27.4%	51.2%	4.7%	187	17

Note: The index is a measure of relative incidence [percentages] among high and low performing schools compared to the incidence observed in the sample overall. The index is the comparison of the percentages shown. e.g., 51.2%/27.4%= 187 [51.2% is the number of independent schools as a percentage of high performing schools]. This table compares the relative incidence of independent and public schools among high and low performing schools compared to their incidence in the overall sample. It shows that independent schools are nearly twice as likely as public schools to be high achieving schools. Their incidence among high achieving schools of 51% is nearly twice as much as their incidence in the sample overall of 27%. BC public schools on the other hand are overrepresented among low performing schools; they are roughly 30% more likely to be found among low performing schools than among the sample overall [as seen in the index of 130].

The Hallmarks of Libraries at High-achieving Schools

The study points to key characteristics of libraries at high-achieving schools, leading to a set of hallmarks that can be used to establish best-practice benchmarks for high performing elementary and secondary schools (indicated here by rounded average results). Although it is recognized that there would be wider variability around some of these estimates due to school size variability, the following variables have a significant relationship with student achievement in high achieving BC schools:

Access.
1. Elementary and secondary school libraries accessible during and outside of school hours.
2. Elementary school libraries open on average six or more hours per week outside of school hours.
3. Elementary school libraries open on average 20 hours or more per week during school hours.
4. Secondary school libraries open on average 30 or more hours per week during school hours.
5. Secondary school libraries open on average 12 or more hours per week outside of school hours.

Staffing.
1. More qualified staff hours of teacher-librarian time in elementary and secondary schools supported by paid clerical/technical staff time and more volunteer staff.
2. Full-time qualified teacher-librarians: elementary and secondary libraries supported by a qualified teacher-librarian working over 40 hours per week.
3. Part-time paid clerical support: elementary and secondary libraries supported by more clerical hours.

Teacher Partnerships and Outreach.
1. Elementary and secondary school teacher-librarians collaboratively involved in literacy and learning.
2. Elementary and secondary teacher-librarians allocating four hours on average per week to student reading incentives.
3. Elementary and secondary teacher-librarians identifying materials for teachers: an average of two hours per week in elementary schools and four hours per week in secondary schools.

Usage.
1. An integrated, well-used elementary and secondary library program that sees 20 student group visits per week on average.
2. Elementary school libraries that see one or more visits per student per week on average.
3. Teacher-librarian individual and group information skills contacts to elementary school students: two or more individual contacts per student per month and 50 or more group contacts per month on average.
4. Secondary school libraries that circulate 1,620 items per month or two or more items per student on average per month.

Networked Information Technologies.
1. Networked information technologies that extend and provide convenient library catalogue access and provide external Internet access in the school library.
2. Secondary schools that provide networked library catalogue access outside of the library.
3. Elementary schools that have at least eight Internet and catalogue-access computers on average in the school library.
4. Elementary schools that have one or more school computers for every ten students on average providing library catalogue access.
5. Secondary schools that have one school computer for every eight students on average providing library catalogue access.

Collection.
1. Collections that have an average publication year current to the most recent seven years or less in secondary schools.
2. Elementary school libraries that have large current collections of periodicals (ten or more periodicals on average).
3. Secondary school libraries that have collections exceeding 22 items per student on average.
4. Secondary school libraries that spend, on average, $20 annually per student.
5. Secondary schools that spend, on average, $5,000 or more annually on other resources or seven dollars per student on average.

Scheduling.
1. Time spent on fixed tasks is minimized to allow for more value-added functions.
2. A maximum of 70% (and preferably less) of the public elementary school librarian's time is allocated to fixed-schedule tasks.

Funding.
1. More library funding allocated in elementary and secondary schools regardless of source.

Discussion

High performing schools in British Columbia have better-supported school libraries, whether survey results include both resource-rich independent schools and public schools, or controlled for funding through results looking at public school performance only. Teacher-librarians in higher performing schools collaborate more with classroom colleagues, support teachers through identification of resources, teach more students, more often on flexible schedules, invest time in reading promotion, and make greater use of volunteer assistance. It is not known whether these behaviours are due to individual initiative, education or school policy decisions.

While not controlling for school size, higher achieving schools were larger on average than lower-achieving schools (586.26 versus 401.27); this was true of both public and independent schools, elementary and secondary. At the same time, there were many high-achieving schools that were smaller in population than low-achieving schools in the sample. This warrants further study.

A subsequent study for the largest school district in the province (Haycock, 2001), while not focused on achievement, did find that many of the "hallmark" elements identified in this study,

including qualification of the teacher-librarian, numbers of adult and student volunteers, school fund-raising for library resources, and flexible scheduling, among others, bore no relationship to school size or socio-economic background of the local community; rather, these were local decisions considered of higher administrative priority.

Position of the British Columbia Ministry of Education

One might expect that the relationship between specific program elements, such as TL staffing and school library support, and student achievement would be considered in reviews of standards and government policy. Such is not the case.

The Provincial Learning Assessment Program, established in 1973 and modified 20 years later with expanded skills evaluation, was designed to collect information about student learning systematically for the evaluation of student achievement and performance, to aid curriculum decision-making, and to provide information for modifying instruction. The studies compared and measured student achievement over 10-year periods in grades 4, 7 and 10. Overall, public schools in British Columbia are high performing compared to schools throughout the world. Nevertheless, the most recent data evaluating social studies, science and English programs called for improvements in student achievement in library related areas such as seeking, gathering, organizing and interpreting information (British Columbia Ministry of Education, 2003).

In the case of social studies, Clarke and Cassidy (1997) compared student capabilities from 1989 and 1996 in Social Studies in British Columbia: Results of the 1996 Provincial Learning Assessment and found a decline in decision-making skills. While the Ministry of Education's 1983 social studies curriculum document (British of Columbia Ministry of Education, 1983) placed great stress on problem-solving and decision-making processes, Clarke and Cassidy revealed weaknesses in BC students' abilities to formulate questions and identify appropriate sources of information.

In the case of math and science, the 1995 assessment report (Marshall, 1997) indicated primary and intermediate students were losing ground in science and called for teacher intervention with a variety of media to enhance communication of topics.

In the case of reading and writing, the provincial interpretation panel advocated resource-enriched curriculum experiences that included a variety of media in the classroom to counter low student achievement and gender differences in reading and writing. A year later in 1999, the government's Foundation Skills Assessment (FSA) showed achievement decreases in reading and writing skills with recommendations for teachers to use supplemental resources and for the Ministry to make supplemental resources available (British Columbia Ministry of Education, 1999). For the most recent year of interpretation of results, the conclusions were similar: students were deficient in information location, organization and interpretation (British Columbia Ministry of Education, 2003).

Throughout these assessments and interpretations no mention was made of any role for the TL or school library. Research in education and teacher-librarianship suggest that rich resources and appropriate inquiry-based learning are made relevant and cost effective when a teacher-librarian supports classroom learning outcomes through collaborative teaching. Although the library's role traditionally has been centered on information and media literacy, support for research-based projects, development of critical thinking skills and instruction on information access, there has been no mention by the Ministry of connecting the government's curriculum recommendations to library programming. Ironically, the British Columbia Ministry of Education's own policy document *Developing independent learners: The role of the school library resource centre* (1991) advocated for these roles and initiatives but has been allowed to go out of print.

In BC, as elsewhere, it would seem that roles and responsibilities traditionally undertaken collaboratively by the teacher-librarian have been relegated to classroom teachers alone through design or neglect. As the recommendations remain the same year after year, it is not a stretch to conclude that classroom teachers are not receiving the training and support they need to carry out mandated initiatives, if indeed they are able to do so on their own. The research suggests that the decline in media and information literacies and reading skills can best be addressed through a collaborative effort between teachers and qualified teacher-librarians, as this study demonstrates.

Areas for Further Study

Since the collection and synthesis of data for this study, little has transpired to correct school library and teacher-librarian deficiencies. Indeed, support has declined with current budget pressures. Several questions emerge for further study:

1. To what extent does school size make a difference to staff and resource allocations, overall use and achievement?
2. To what extent do school library resources correlate with school performance that exceeds expectations based on community income and parental educational attainment?
3. To what extent do students in high performing schools with better supported school libraries achieve higher on government school-leaving examinations in content areas?
4. To what extent are desirable teacher-librarian behaviors (collaboration, reading promotion, integrated skills instruction) correlated with background and education, individual preference and initiative and/or school/principal expectations?
5. Why do studies of program effectiveness and student achievement correlated with school library support not resonate with policy developers and funding allocators? What alternate programs are selected for support and why?

Conclusions

This study confirms the findings of over 40 years of research, conducted in different locations, at different levels of schooling, in different socioeconomic areas, sponsored by different agencies and conducted by different, credible researchers providing an abundance of evidence about the positive impact of qualified teacher-librarians and school libraries on children and adolescents. Recent studies in the United States and Canada on the relationship between school libraries, teacher-librarians and student achievement – sponsored by groups as diverse as the State Library in Alaska, the Department of Education in Colorado, the school library media association in Oregon, a citizens' coalition in Pennsylvania, the Area Education Agencies in Iowa, the State Library of New Mexico, the Board of Regents of New York, the State Library and Archives in Texas and the People for Education in Ontario– all have concluded that schools with well-stocked, well-equipped school libraries, managed by qualified and motivated professional teacher-librarians working with support staff produce a) capable and avid readers; b) learners who are information literate, and c) teachers who are partnering with the teacher-librarian to create high-quality learning experiences. However, these results are correlational, not cause and effect, and do not isolate other possible variables and do not report by school size. This study does, however, control for school funding and pinpoints the importance of local decision-making in school library financial, administrative and policy support.

These results, taking a different approach albeit with a small population base, nevertheless add to the growing importance for effective school library programs, contribute to known best practices in the role of the teacher-librarian, point to the need for policy and priorities for school library programs, highlight local decisions for funding and provide baseline data for future investigations.

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